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INTEGRATED INFORMATION SUPPORT SYSTEM (IIS) VOLUME 8 1/2

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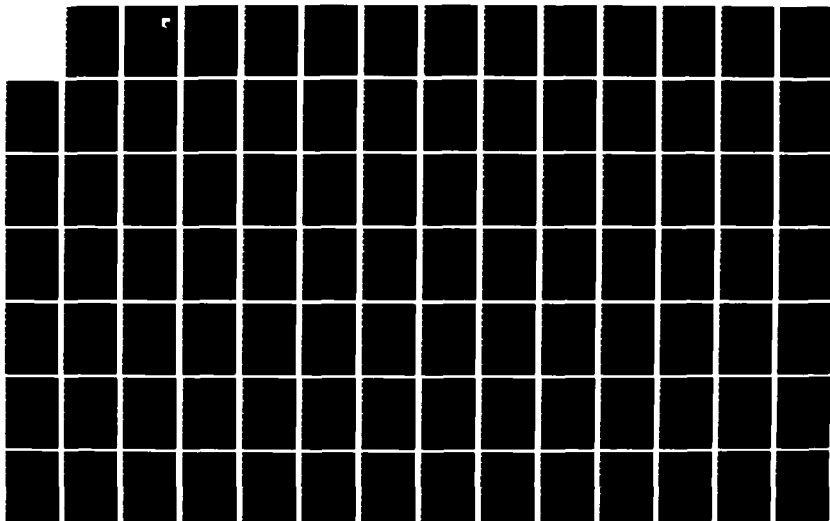
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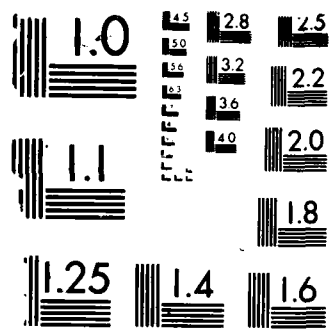
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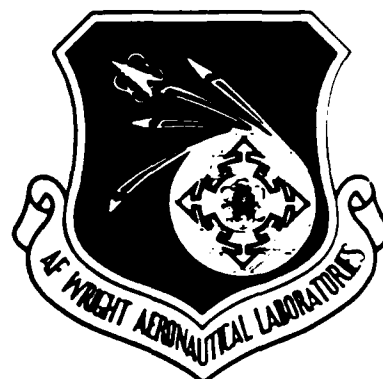
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AFWAL-TR-86-4006
Volume VIII
Part 8



INTEGRATED INFORMATION
SUPPORT SYSTEM (IISS)
Volume VIII - User Interface Subsystem
Part 8 - Form Processor Unit Test Plan

General Electric Company
Production Resources Consulting
One River Road
Schenectady, New York 12345

Final Report for Period 22 September 1980 - 31 July 1985
November 1985

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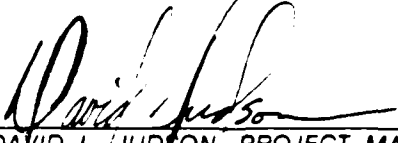


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This report has been reviewed by the Office of Public Affairs (ASD/PA) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.




DAVID L. JUDSON, PROJECT MANAGER
AFWAL/MLTC
WRIGHT PATTERSON AFB OH 45433

5 Aug 1986

DATE

FOR THE COMMANDER.



GERALD C. SHUMAKER, BRANCH CHIEF
AFWAL/MLTC
WRIGHT PATTERSON AFB OH 45433

7 Aug 86

DATE

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19 ABSTRACT (Continue on reverse if necessary and identify by block number) This unit test plan establishes the methodology and procedures used to adequately test the capabilities of the computer program identified as the Form Processor (FP). The FP consists of a set of callable execution time routines that allows an application program to send receive formatted screen to from various terminals and to perform terminal control functions independent of the terminal type. It also has a User Interface Monitor (UIM) that handles translating messages sent across the NTH into the appropriate FP calls. The UIM also handles the log on to IISS, processing the IISS Function Screen and processing the window management form.			
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PREFACE

This unit test plan covers the work performed under Air Force Contract F33615-80-C-5155 (ICAM Project 6201). This contract is sponsored by the Materials Laboratory, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio. It was administered under the technical direction of Mr. Gerald C. Shumaker, ICAM Program Manager, Manufacturing Technology Division, through Project Manager, Mr. David Judson. The Prime Contractor was Production Resources Consulting of the General Electric Company, Schenectady, New York, under the direction of Mr. Alan Rubenstein. The General Electric Project Manager was Mr. Myron Hurlbut of Industrial Automation Systems Department, Albany, New York.

Certain work aimed at improving Test Bed Technology has been performed by other contracts with Project 6201 performing integrating functions. This work consisted of enhancements to Test Bed software and establishment and operation of Test Bed hardware and communications for developers and other users. Documentation relating to the Test Bed from all of these contractors and projects have been integrated under Project 6201 for publication and treatment as an integrated set of documents. The particular contributors to each document are noted on the Report Documentation Page (DD1473). A listing and description of the entire project documentation system and how they are related is contained in document FTR620100001, Project Overview.

The subcontractors and their contributing activities were as follows:

TASK 4.2

<u>Subcontractors</u>	<u>Role</u>
Boeing Military Aircraft Company (BMAC)	Reviewer.
D. Appleton Company (DACOM)	Responsible for IDEF support, state-of-the-art literature search.
General Dynamics/ Ft. Worth	Responsible for factory view function and information models.

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1 November 1985

Subcontractors

Role

Illinois Institute of
Technology

Responsible for factory view
function research (IITRI)
and information models of
small and medium-size business.

North American Rockwell

Reviewer.

Northrop Corporation

Responsible for factory view
function and information
models.

Pritsker and Associates

Responsible for IDEF2 support.

SofTech

Responsible for IDEF0 support.

TASKS 4.3 - 4.9 (TEST BED)

Subcontractors

Role

Boeing Military Aircraft
Company (BMAC)

Responsible for consultation on
applications of the technology
and on IBM computer technology.

Computer Technology
Associates (CTA)

Assisted in the areas of
communications systems, system
design and integration
methodology, and design of the
Network Transaction Manager.

Control Data Corporation
(CDC)

Responsible for the Common Data
Model (CDM) implementation and
part of the CDM design (shared
with DACOM).

D Appleton Company
(DACOM)

Responsible for the overall CDM
Subsystem design integration
and test plan, as well as part
of the design of the CDM
(shared with CDC) DACOM also
developed the Integration
Methodology and did the schema
mappings for the Application
Subsystems.

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Subcontractors

Role

Digital Equipment
Corporation (DEC)

Consulting and support of the
performance testing and on DEC
software and computer systems
operation.

McDonnell Douglas
Automation Company
(McAuto)

Responsible for the support and
enhancements to the Network
Transaction Manager Subsystem
during 1984/1985 period.

On-Line Software
International (OSI)

Responsible for programming the
Communications Subsystem on the
IBM and for consulting on the
IBM.

Rath and Strong Systems
Products (RSSP) (In 1985
became McCormack & Dodge)

Responsible for assistance in
the implementation and use of
the MRP II package (PIOS) that
they supplied.

SofTech, Inc.

Responsible for the design and
implementation of the Network
Transaction Manager (NTM) in
1981/1984 period.

Software Performance
Engineering (SPE)

Responsible for directing the
work on performance evaluation
and analysis.

Structural Dynamics
Research Corporation
(SDRC)

Responsible for the User
Interface and Virtual Terminal
Interface Subsystems.

Other prime contractors under other projects who have
contributed to Test Bed Technology, their contributing
activities and responsible projects are as follows:

<u>Contractors</u>	<u>ICAM Project</u>	<u>Contributing Activities</u>
Boeing Military Aircraft Company (BMAC)	1701, 2201, 2202	Enhancements for IBM node use. Technology Transfer to Integrated Sheet Metal Center (ISMC).

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<u>Contractors</u>	<u>ICAM Project</u>	<u>Contributing Activities</u>
Control Data Corporation (CDC)	1502, 1701	IISS enhancements to Common Data Model Processor (CDMP).
D. Appleton Company (DACOM)	1502	IISS enhancements to Integration Methodology.
General Electric	1502	Operation of the Test Bed and communications equipment.
Hughes Aircraft Company (HAC)	1701	Test Bed enhancements.
Structural Dynamics Research Corporation (SDRC)	1502, 1701, 1703	IISS enhancements to User Interface/Virtual Terminal Interface (UI/VTI).
Systran	1502	Test Bed enhancements. Operation of Test Bed.

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SECTION 1

GENERAL

1.1 Purpose

This unit test plan establishes the methodology and procedures used to adequately test the capabilities of the computer program identified as the Form Processor, known in this document as the FP. The FP is one configuration item of the Integrated Information Support System (IISS) User Interface (UI). It consists of Form Processor callable routines and the User Interface Monitor which is the main controller of the Form Processor.

1.2 Project References

- [1] ICAM Documentation Standards, 23 December 1981, IDS150120000A.
- [2] Structural Dynamics Research Corporation, Form Processor Application Programmer Manual, UM 620144200B, 1 November 1985.
- [3] Structural Dynamics Research Corporation, Form Processor Computer Program Development Specification, DS 620144200, 1 November 1985.
- [4] Structural Dynamics Research Corporation, Forms Language Compiler Unit Test Plan, UTP620144401, 1 November 1985.
- [5] Structural Dynamics Research Corporation, Forms Driven Form Editor Unit Test Plan, UTP620144402, 1 November 1985.
- [6] Structural Dynamics Research Corporation, Report Writer Unit Test Plan, UTP620144501, 1 November 1985.
- [7] Structural Dynamics Research Corporation, Rapid Application Generator Unit Test Plan, UTP620144502, 1 November 1985.
- [8] Structural Dynamics Research Corporation, Text Editor Unit Test Plan, UTP620144600, 1 November 1985.

- [9] Structural Dynamics Research Corporation, Application Interface Unit Test Plan, UTP620144700, 1 November 1985.
- [10] Structural Dynamics Research Corporation, User Interface Services Unit Test Plan, UTP620144100, 1 November 1985.
- [11] Structural Dynamics Research Corporation, Form Processor Unit Test Plan, UTP620144200, 1 November 1985.

1.3 Terms and Abbreviations

American Standard Code for Information Interchange: (ASCII), the character set defined by ANSI X3.4 and used by most computer vendors.

Application Interface: (AI), subset of the IISS User Interface that consists of the callable routines that are linked with applications that use the Form Processor or Virtual Terminal. The AI enables applications to be hosted on computers other than the host of the User Interface.

Application Process: (AP), a cohesive unit of software that can be initiated as a unit to perform some function or functions.

Attribute: field characteristic such as blinking, highlighted, black, etc. and various other combinations. Background attributes are defined for forms or windows only. Foreground attributes are defined for items. Attributes may be permanent, i.e., they remain the same unless changed by the application program, or they may be temporary, i.e., they remain in effect until the window is redisplayed.

Common Data Model: (CDM), IISS subsystem that describes common data application process formats, form definitions, etc. of the IISS and includes conceptual schema, external schemas, internal schemas, and schema transformation operators.

Computer Program Configuration Item: (CPCI), an aggregation of computer programs or any of their discrete portions, which satisfies an end-use function.

Conceptual Schema: (CS), the standard definition used for all data in the CDM. It is based on IDEF1 information

modelling.

Current Cursor Position: the position of the cursor before an edit command or function is issued in the text editor.

Cursor Position: the position of the cursor after any command is issued.

Device Drivers: (DD), software modules written to handle I/O for a specific kind of terminal. The modules map terminal specific commands and data to a neutral format. Device Drivers are part of the UI Virtual Terminal.

Display List: is similar to the open list, except that it contains only those forms that have been added to the screen and are currently displayed on the screen.

Display Size: the number of lines used in the edit area.

Extended Binary Coded Decimal Interchange Code: (EBCDIC), the character set used by a few computer vendors (notably IBM) instead of ASCII.

External Schema: (ES), an application's view of the CDM's conceptual schema.

Field: two-dimensional space on a terminal screen.

Field Pointer: indicates the ITEM which contains the current cursor position.

Form: structured view which may be imposed on windows or other forms. A form is composed of fields. These fields may be defined as forms, items, and windows.

Form Definition: (FD), forms definition language after compilation. It is read at runtime by the Form Processor.

Forms Definition Language: (FDL), the language in which electronic forms are defined.

Forms Driven Form Editor: (FD FE), subset of the FE which consists of a forms driven application used to create Form Definition files interactively.

Form Editor: (FE), subset of the IISS User Interface that is used to create definitions of forms. The FE consists of the

Forms Driven Form Editor and the Forms Language Compiler.

Form Hierarchy: a graphic representation of the way in which forms, items and windows are related to their parent form.

Forms Language Compiler: (FLAN), subset of the FE that consists of a batch process that accepts a series of forms definition language statements and produces form definition files as output.

Form Processor: (FP), subset of the IISS User Interface that consists of a set of callable execution time routines available to an application program for form processing

Form Processor Text Editor: (FPTE), subset of the Form Processor that consists of software modules that provide text editing capabilities to all users of applications that use the Form Processor.

Integrated Information Support System (IISS), a test computing environment used to investigate, demonstrate and test the concepts of information management and information integration in the context of Aerospace Manufacturing. The IISS addresses the problems of integration of data resident on heterogeneous data bases supported by heterogeneous computers interconnected via a Local Area Network

Item: non-decomposable area of a form in which hard-coded descriptive text may be placed and the only defined areas where user data may be input/output

Logical Device: a conceptual device which to an application is indistinguishable from a physical device and is then mapped to part or all of a physical device.

Message: descriptive text which may be returned in the standard message line on the terminal screen. They are used to warn of errors or provide other user information

Message Line: a line on the terminal screen that is used to display messages.

Network Transaction Manager: (NTM) IISS subsystem that performs the coordination, communication and housekeeping functions required to integrate the Application Processes and System Services resident on the various hosts into a cohesive system.

Open List: a list of all the forms that have been and are currently open for an application process.

Operating System: (OS), software supplied with a computer which allows it to supervise its own operations and manage access to hardware facilities such as memory and peripherals.

Page: instance of forms in windows that are created whenever a form is added to a window.

Paging and Scrolling: a method which allows a form to contain more data than can be displayed with provisions for viewing any portion of the data buffer.

Physical Device: a hardware terminal

Presentation Schema: (PS), may be equivalent to a form. It is the view presented to the user of the application.

Previous Cursor Position: the position of the cursor when the previous edit command was issued.

Qualified Name: the name of a form, item or window preceded by the hierarchy path so that it is uniquely identified.

Report Definition Language: an extension of the Forms Definition Language that includes retrieval and calculation of database information and is used to define reports.

Subform: a form that is used within another form.

User Data: data which is either input by the user or output by the application programs to items

User Interface (UI), IISS subsystem that controls the user's terminal and interfaces with the rest of the system. The UI consists of two major subsystems: the User Interface Development System (UIDS) and the User Interface Management System (UIMS).

User Interface Development System (UIDS), collection of IISS User Interface subsystems that are used by applications programmers as they develop IISS applications. The UIDS includes the Form Editor and the Application Generator.

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User Interface Management System (UIMS), the runtime UI. It consists of the Form Processor, Virtual Terminal, Application Interface, the User Interface Services and the Text Editor.

User Interface Monitor (UIM), part of the Form Processor that handles messaging between the NTM and the UI. It also provides authorization checks and initiates applications.

User Interface Virtual Terminal Interface (UI/VTI), another name for the User Interface

Virtual Terminal (VT), subset of the IISS User Interface that performs the interfacing between different terminals and the UI. This is done by defining a specific set of terminal features and protocols which must be supported by the UI software which constitutes the virtual terminal definition. Specific terminals are then mapped against the virtual terminal software by specific software modules written for each type of real terminal supported.

Virtual Terminal Interface (VTI), the callable interface to the VT

Window, dynamic area of a terminal screen on which predefined forms may be placed at run time

Window Manager, a facility which allows the following to be manipulated: size and location of windows, the device on which an application is running, the position of a form within a window. It is part of the Form Processor

SECTION 2

DEVELOPMENT ACTIVITY

2.1 Statement of Pretest Activity

During system development, the computer programs were tested progressively. Functionality was incrementally tested, and as bugs were discovered by this testing, the software was corrected.

Each Form Processor callable routine was tested individually through Form Processor development. A test program, ARTEST, was developed as an easy means of testing changes to the Form Processor. This test program allows a developer to type in commands that are translated into the appropriate Form Processor calls. With this test program all Form Processor callable routines may be executed.

Testing of the User Interface Monitor (UIM) of the Form Processor began with the integration of the Form Processor and the NTM. The UIM's main task is to receive messages sent to the Form Processor. A test mini-NTM was developed also so that the Window Management processing capability of the Form Processor could be tested before integration with the NTM.

All pretesting activity was conducted by the individual program developer in a manual mode. The developer would manually enter data onto the screen and observe the results. Any errors were noted by the developer, and corrections to the Form Processor software were then made after a testing session.

2.2 Pretest Activity Results

The pretest activity was very successful in the elimination of programming bugs so that at release time only a few bugs were found in the Form Processor. The development of the test program, ARTEST, has proved very beneficial since as new functionality was added to the Form Processor, ARTEST was also updated to test this functionality. ARTEST is the major test tool for the Unit Test Plan of the Form Processor.

The mini-NTM was useful in testing the window management

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processing; however, it postponed our integration with the real NTM since it was easier to run and test standalone. This integration was a difficult process. The only significant bug found in the window management processing through the NTM integration was incorrect use of the Source as the application name in an Application End message.

The pretesting activity was successful in eliminating programming errors and helped pinpoint difficulties in integration with the NTM.

SECTION 3

SYSTEM DESCRIPTION

3.1 System Description

The Form Processor consists of a set of callable execution time routines that allows an application program to send/receive formatted screens to/from various terminals and to perform terminal control functions independent of the terminal type. It also has a User Interface Monitor (UIM) that handles translating messages sent across the NTM into the appropriate FP calls. The UIM also handles the log on to IISS, processing the IISS Function Screen and processing the window management form.

The following block diagram illustrates the Form Processor Test Configuration used in the Unit Test Plan.

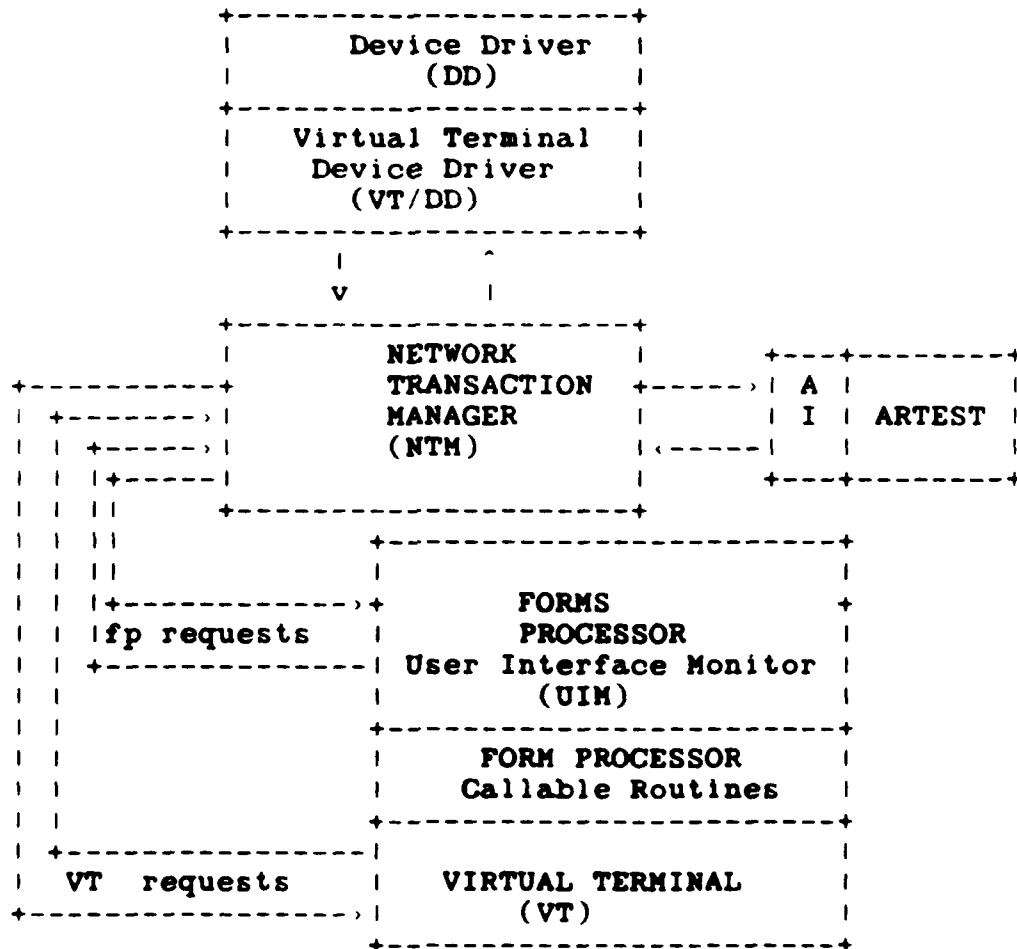


Figure 3-1 Interface Block Diagram

The required input and the resulting output of these tests are documented in detail in Section 5.3. The general testing method is the entry of commands on the ARTEST form Command Line item and the translation of this command by the ARTEST program into a call to the appropriate Form Processor routine. Each Form Processor routine as found in Section 3.2 of the Form Processor Development Specification is to be exercised. The resulting output is observed on the ARTEST form. Appendix A

outlines the ARTEST command format and the various types of commands and function keys.

The following keys are used to move within forms (using the VT100 terminal as an example): the ENTER key is used to activate all commands; the TAB key is used to move from field to field within the form; and the arrow keys are used to move within fields. In addition, ESC TAB is a reverse TAB.

3.2 Testing Schedule

The execution of the Form Processor is dependent upon the NTM subsystem of IISS when it is not configured stand-alone. Testing of the Form Processor must be done only after the NTM has been successfully tested. In this unit test, the Form Processor is dependent on the Application Interface (AI) and on the Virtual Terminal (VT).

3.3 First Location Testing

These tests of the Form Processor require the following:

Equipment: Air Force VAX, terminals supported by the Virtual Terminal as listed in the UI Terminal Operator's Guide.

Support Software: Release 2.0 of the Integrated Information Support System, the Relational Software Incorporated Oracle database management system.

Personnel: One integrator familiar with the IISS.

Training: The FP User Manual has been previously provided with the current release.

Deliverables: The User Interface Management Subsystem Release 2.0.

Test Materials: This test may be run interactively by inputting the appropriate data and observing the output as outlined in this test plan. A script file has been created to run this unit test plan and save the resulting output.

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Security considerations: None.

3.4 Subsequent Location Testing

The requirements as listed above need to be met; however, in subsequent testing it is advantageous to create a script file of the outlined tests and run this saving the output of the test for future comparisons.

SECTION 4

SPECIFICATIONS AND EVALUATIONS

4.1 Test Specification

The Unit Test Plan is based on covering specific functionality as outlined in the Form Processor DS. The test uses the test program ARTEST. The division of the test is as follows:

- 1) Form Processor callable routines,
- 2) Form Processor paging and scrolling,
- 3) Window management callable routines,
- 4) Window management function keys,
- 5) Window Management Form processing.

The following chart has the functional requirements as outlined in Section 3.2 of the Form Processor Development Specification listed vertically and the test activities in the Unit Test Plan that demonstrate each functional requirement's testing listed horizontally. As can be seen in the figures in Section 5.3, the command line of the form used by ARTEST, has the actual Form Processor routine name specified or is annotated with what function key was pressed.

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Functional Require- ments	Diagram Mapping																									
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
ADDFRM	X																									
CHGLDV		X																								
CLSFRM			X																							
CLSLDV				X																						
GDATA					X																					
GETATT						X																				
GETBAK							X																			
GETCUR								X																		
GPAGE									X																	
GWINDO										X																
INITFP											X															
INQLDV												X														
OISCR													X													
OPNFRM														X												
OPNLDV															X											
OUTSCR																X										
PARFQN																	X									
PDATA																		X								
PMSGLC																			X							
PMSGLS																				X						

-CONTINUED-

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Functional Require- ments	Diagram Mapping																										
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
PUTATT																									X		
PUTBAK																									X		
PUTCUR																									X		
RMVPAG																									X		
RPLFRM																										X	
TERMFP																											X

-CONTINUED-

Functional Require- ments	Diagram Mapping								
	1	2	3	4	5	6	7	8	9
Terminal in Terminal	X								
SCROLLING(FP)	X								
PAGING(FP)		X							
WM FUNCTION KEYS			X						
UIM Message Handling				X					
UIM Logon Processing					X				
UIM Function Processing						X			
Window Management Form of UIM							X		
FP FUNCTION KEYS								X	

Figure 4-1 Table of Functionality Testing

The steps outlined in Section 5.3 presenting the BEFORE and AFTER forms of each test show the direct correspondence between the test and the functional requirements as listed in this section.

- A - Figure 5-3-a thru Figure 5-4-b
- B - Figure 5-43-a thru Figure 5-43-b
- C - Figure 5-11-a thru Figure 5-12-b
- D - Figure 5-69-a thru Figure 5-69-b
- E - Figure 5-16-a thru Figure 5-18-b
- F - Figure 5-19-a thru Figure 5-19-b

G - Figure 5-23-a thru Figure 5-23-b
H - Figure 5-27-a thru Figure 5-27-b
I - Figure 5-7-a thru Figure 5-7-b
J - Figure 5-8-a thru Figure 5-8-b
K - Figure 5-2-a thru Figure 5-2-b
L - Figure 5-41-a thru Figure 5-41-b
M - Figure 5-29-a thru Figure 5-29-c
N - Figure 5-3-a thru Figure 5-4-b
O - Figure 5-42-a thru Figure 5-42-b
P - Figure 5-29-a thru Figure 5-29-c
Q - Figure 5-28-a thru Figure 5-28-b
R - Figure 5-13-a thru Figure 5-13-b
S - Figure 5-39-c
T - Figure 5-40-c
U - Figure 5-20-a thru Figure 5-21-b, 5-24-a thru 5-25-b
V - Figure 5-22-a thru Figure 5-22-b, 5-26-a thru 5-26-b
W - Figure 5-27-a thru Figure 5-27-b
X - Figure 5-6-a thru Figure 5-6-b
Y - Figure 5-5-a thru Figure 5-5-b
Z - Figure 5-70-a thru last Figure
1 - Figure 5-29-a thru Figure 5-29-c
2 - Figure 5-31-a thru Figure 5-34-b
3 - Figure 5-35-a thru Figure 5-40-d
4 - Figure 5-45-a thru Figure 5-56-b
5 - Figure 5-1-a thru last Figure
6 - Figure 5-1-a thru Figure 5-1-c
7 - Figure 5-1-c thru Figure 5-2-b
8 - Figure 5-60-a thru Figure 5-64-b
9 - Figure 5-30-b thru Figure 5-31-a

4.2 Testing Methods and Constraints

The tests as outlined in Section 5 must be followed. The required input is stated for each test. This testing uses the normal mode of operation of these functions and does not completely exercise all the error combinations that a user of the Form Processor might create by faulty entry of form field information. Much of this testing has been done, however, through the normal testing done by the developer of these functions. No data recording is required. It is suggested that on further running of this test, scripting of the test may be done and the output from running the script be saved for future testing. No additional constraints are placed on this unit test besides those listed in Section 3.3 of this unit test plan.

4.3 Test Progression

The progression of testing of the Form Processor is fully outlined in Section 5 of this unit test plan. This progression should be followed exactly to insure the successful testing of this IISS configuration item.

4.4 Test Evaluation

The test results are evaluated by comparing the information returned on the various output screens to that specified as successful for the given test. As outlined in Section 5, each test of Form Processor functionality provides an input screen with the required data entry specified and the resulting output for a successful test. To speed up this testing and provide more accurate measurement of the test's success, scripting has been used. The resulting output of these test is saved in a file FPUTP.SAV. The corresponding test script file is FPUTP.SCP. Both these files are under IISS Configuration Management. If scripting is used, these files should be copied over to the test directory. The .SAV file may be used for future comparison against subsequent running of this unit test using scripting. To compare the results use the command file DIFFILE.COM which was released as part of the acceptance testing done on the Air Force VAX and is under Configuration Management. The only differences should be the date/time stamps on the IISS function screen and the type of device on the window manager screen. The device type is given to the UIS by the NTM at run time.

SECTION 5

TEST PROCEDURES

5.1 Test Description

A general description of this unit test was provided in Section 3.

5.2 Test Control

As outlined, this unit test may be done manually or run automatically using a supplied script file. To manually perform this unit test would require the tester to be logged into the IISS system and enter SDARTESTZZ on the IISS Function Screen. In section 5.3 the required input data is specified for each function being tested and the resulting successful output is also specified. The order of the testing is also completely specified. The test control information is completely described by the sequence of the input and output screens presented in this section. The successfulness of the test may be determined by doing a comparison on the SAV files produced against the ones provided under IISS Configuration Management.

5.3 Test Procedures

To run the unit test plan as outlined in this section on a VAX, one must be logged on to an IISS account. The NTM must be up and running and the UI group logical names IISSFLIB and IISSMLIB must be set properly. IISSFLIB points to the directory containing production form definitions (FD files). IISSMLIB points to the directory containing error messages (MSG files).

This unit test uses the program ARTEST and its associated forms ffl through ff9. The fdl source file for these forms is presented in Appendix B. The executable for ARTEST should exist in the NTM environment directory and the NTM dirtbl.dat should have its SD entry pointing to this directory. The NTM tables APITBL, APTTBL, and ACTTBL should have ARTEST set up as a normal IISS application program.

Assuming the NTM is up and running, an IISS user may start up this unit test plan as follows:

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```
$ SET DEF .to directory containing your NTM environment
$ VT100 -RFPUTP.SCP -SFPTST.SAV
```

This starts up the VT100 device driver with a source script as input and specifies a save file for output. If the User Interface system has been installed at your site with a different device driver, then this step is amended as appropriate. The test begins executing on the terminal. The results of this test are saved in the current directory in the file FPTST.SAV. The Before and After Figures show not only the form input and output but also the sequencing of the test.

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USER ID:

PASSWORD:

ROLE:

Msg: ☐

application

Figure 5-1a (Logon Screen)

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USER ID: MORENC

PASSWORD:

ROLE: MANAGER

Msg: ☐

application

Figure 5-1b (BEFORE)

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ITSS TEST BED VERSION 2.0

DATE: TIME: USER ID: ROLE:

FUNCTION: DEVICE TYPE: DEVICE NAME:

Msg: APPLICATION

Figure 5-1c (AFTER)

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IISS TEST BED VERSION 2.0

DATE:	6/26/85	TIME:	10:35:09	USER ID:	MPREDC	ROLE:	MANAGER
FUNCTION:	SDARTESTZZ	DEVICE TYPE:		DEVICE NAME:			

msg application

Figure 5-2a (BEFORE)

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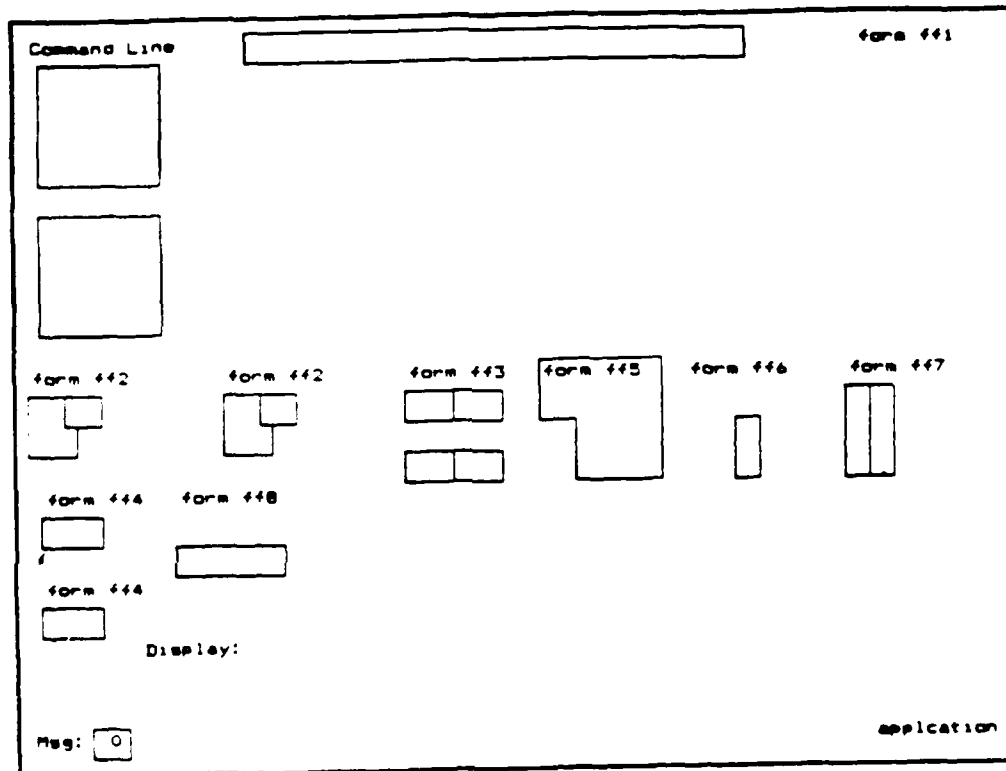


Figure 5-2b (AFTER)

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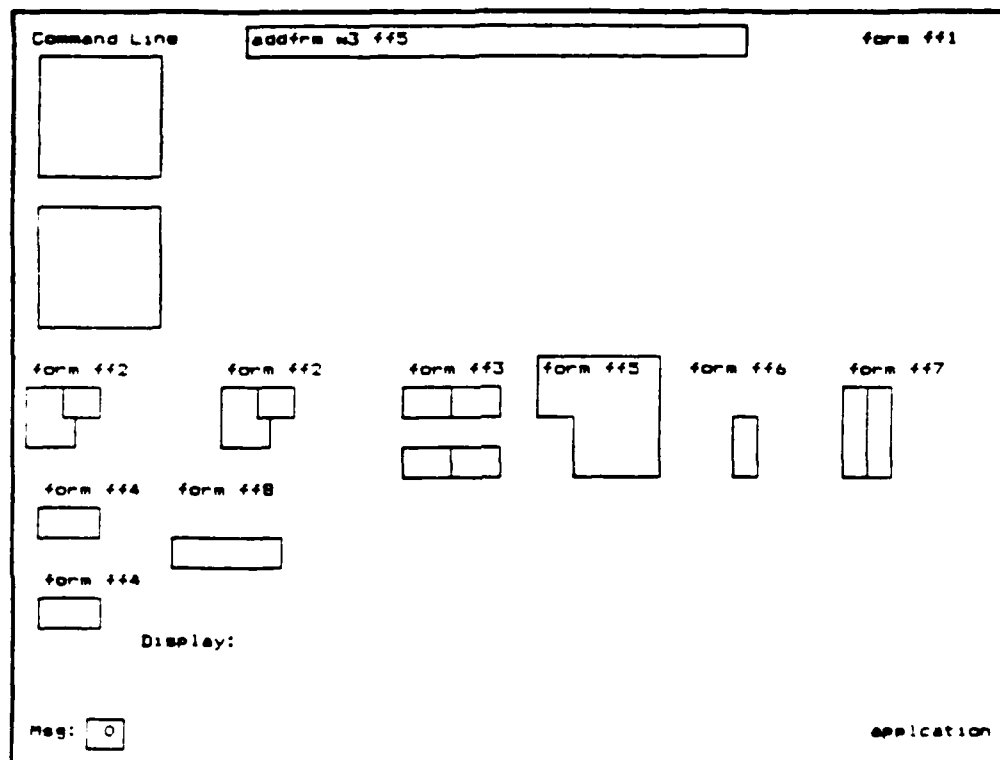


Figure 5-3a (BEFORE)

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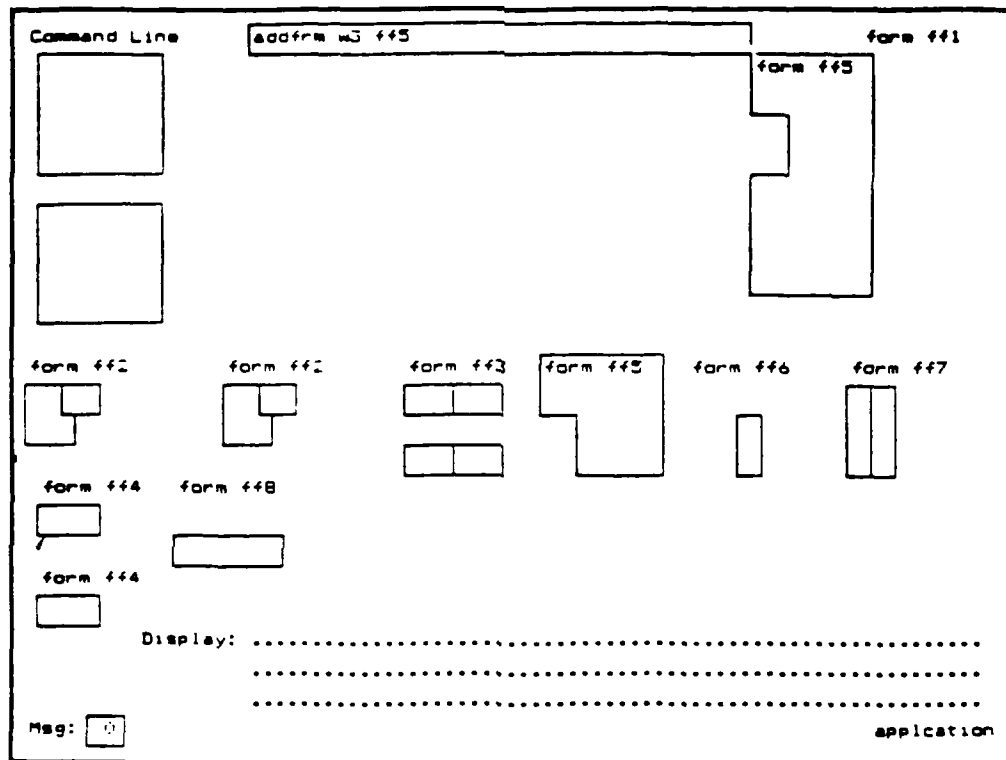


Figure 5-3b (AFTER)

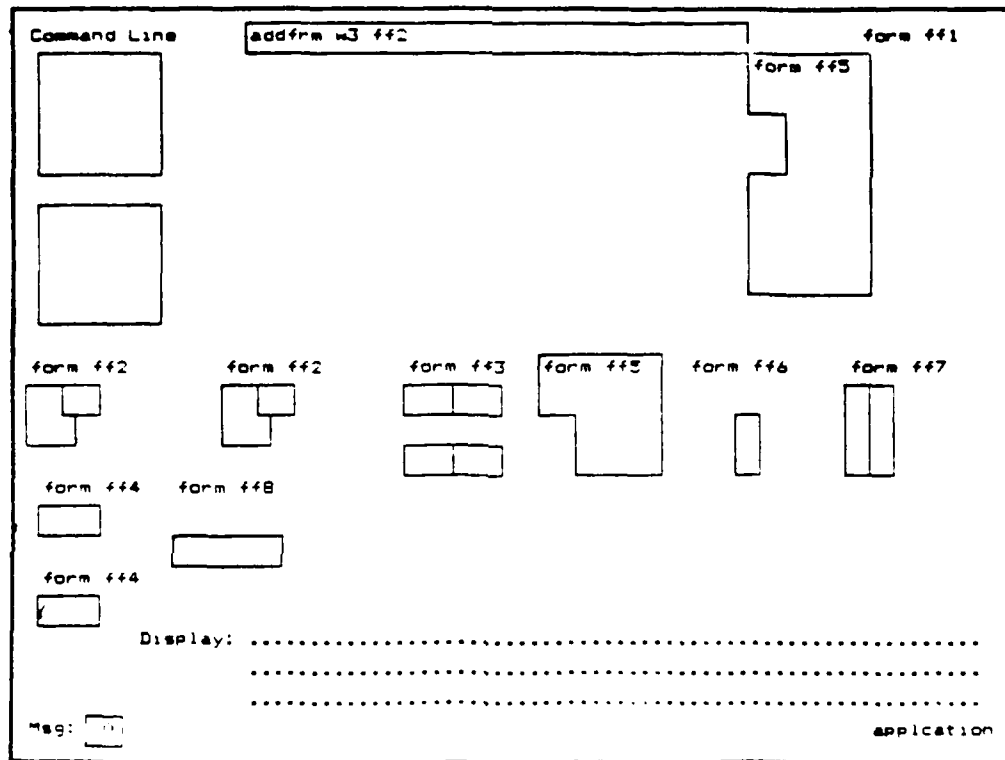


Figure 5-4a (BEFORE)

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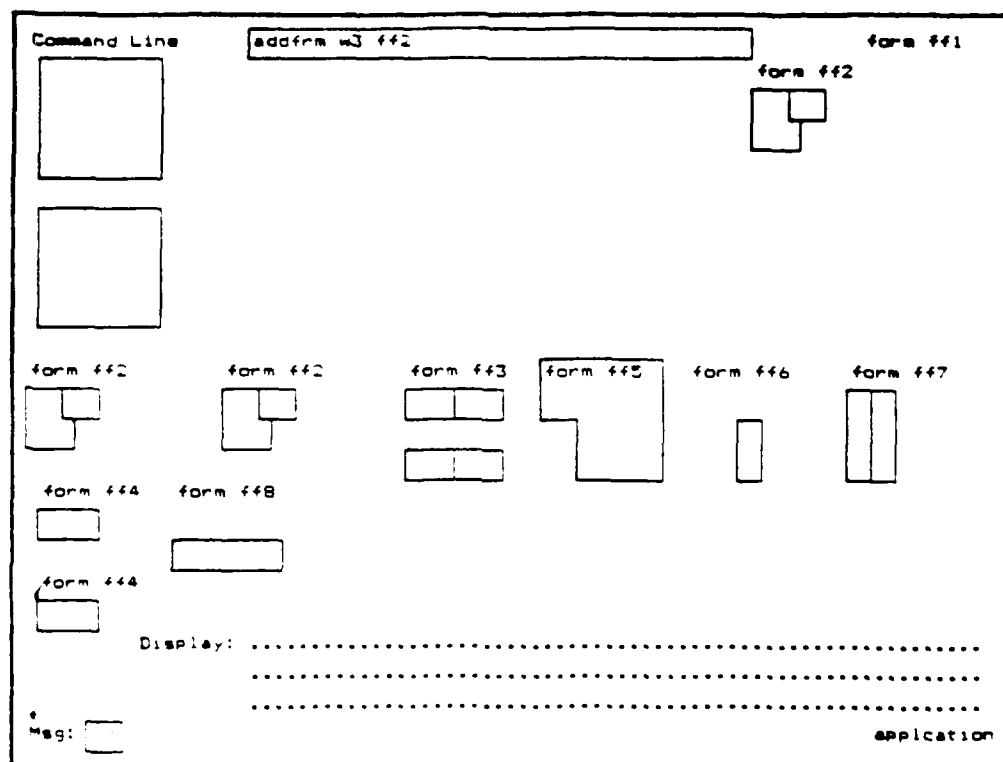


Figure 5-4b (AFTER)

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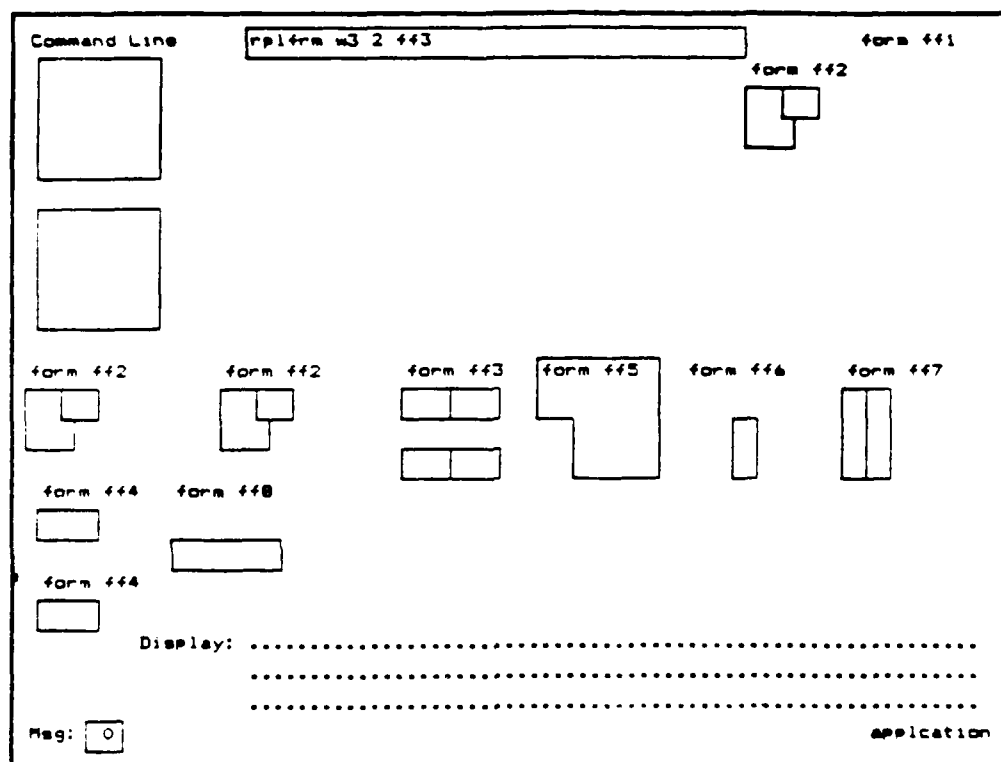


Figure 5-5a (BEFORE)

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Command Line form ff1

form ff2form ff2form ff3form ff5form ff6form ff7

Display:

.....

.....

Msg: application

Figure 5-5b (AFTER)

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Command Line

navpag w3 2

form #41

form #43

form #42

form #42

form #43

form #45

form #46

form #47

form #44

form #48

form #44

Display:

Msg: []

application

Figure 5-6a (BEFORE)

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Command Line form #41

 form #42

form #43 form #44 form #45 form #46 form #47

form #48 form #49

form #44

Display:

Mag: application

Figure 5-6b (AFTER)

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Command Line

page =3 1

form #41

form #42

form #43

form #44

form #45

form #46

form #47

form #48

Display:

Msg:

application

Figure 5-7a (BEFORE)

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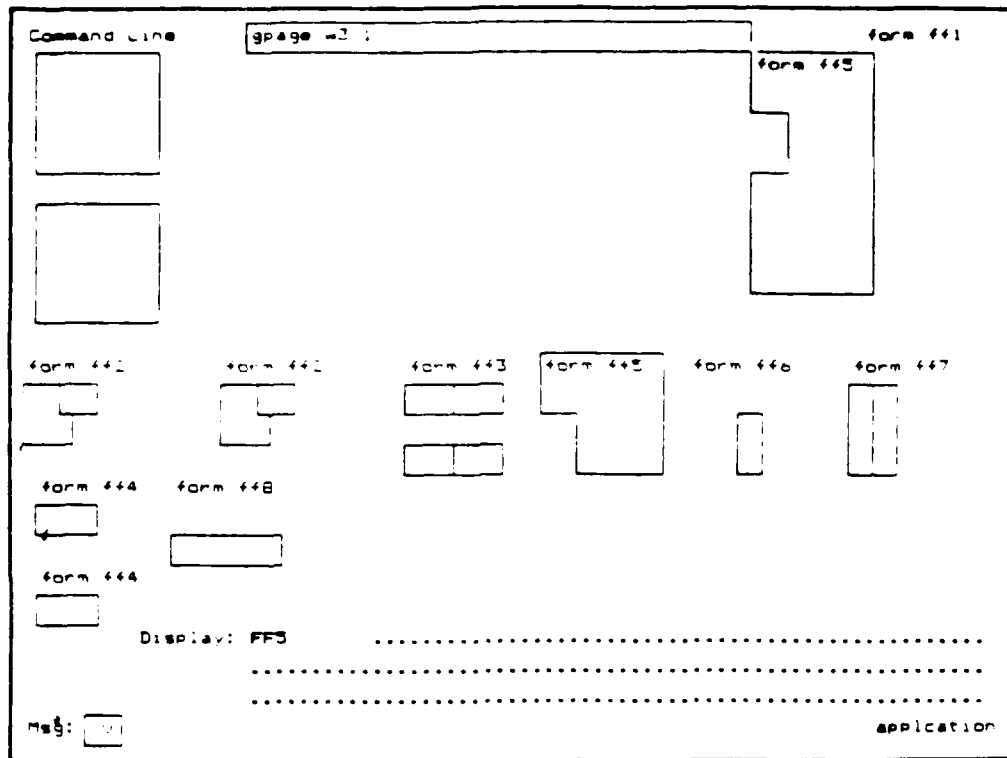


Figure 5-7b (AFTER)

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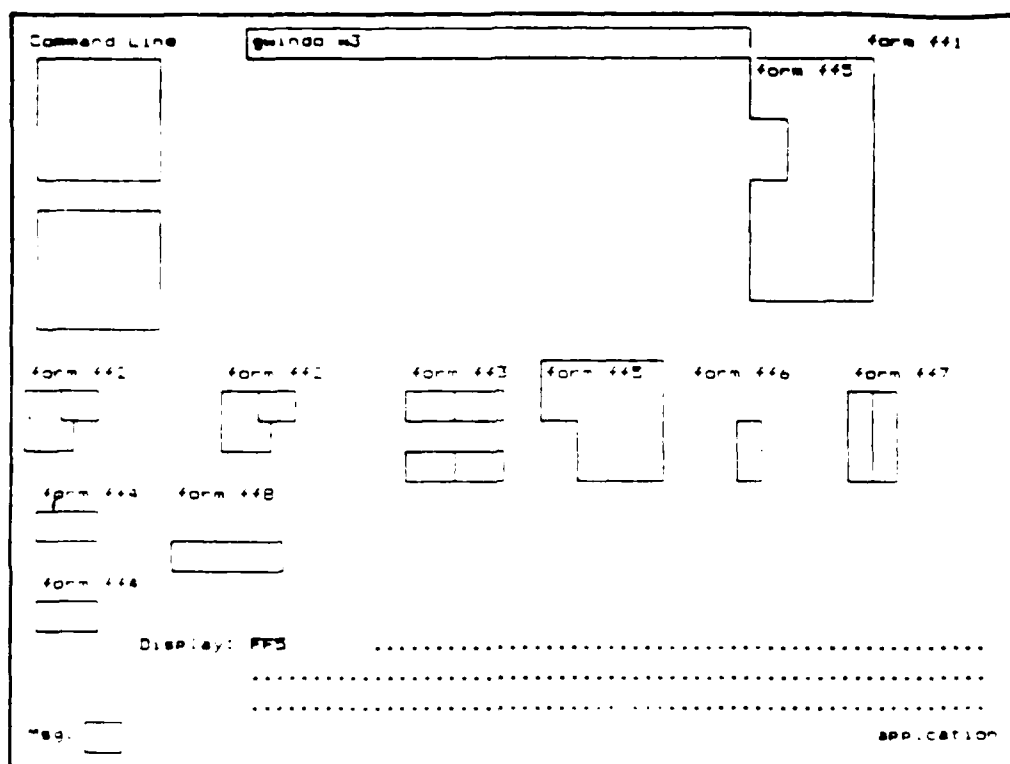


Figure 5-8a (BEFORE)

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Command Line

g=,ndc #3

form #41

form #43

form #45

form #42

form #44

form #46

form #47

form #48

form #49

form #50

form #51

form #52

form #53

Close

Help

APPLICATION

Figure 5-8b (AFTER)

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Command Line add new wj 119 form 111

form 112 form 113 form 114 form 115 form 116 form 117

Display: 1

Msg Application

Figure 5-9a (BEFORE)

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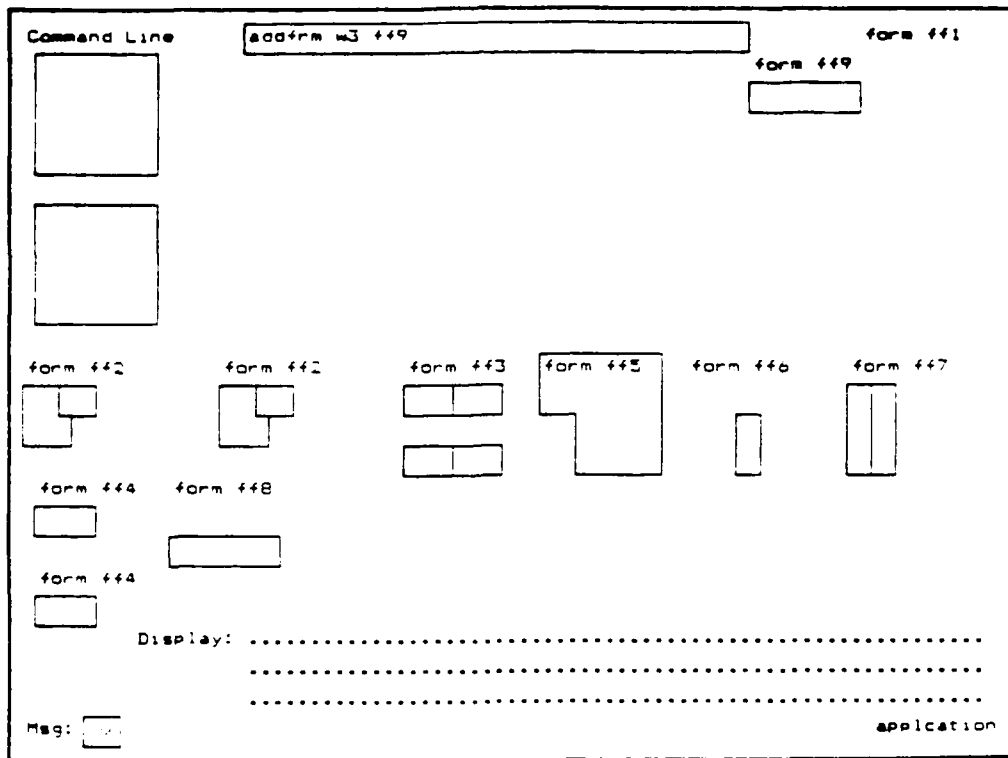


Figure 5-9b (AFTER)

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Command Line form ff1

form ff9

form ff2 form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display:
.....
.....

Msg: application

Figure 5-10a (BEFORE)

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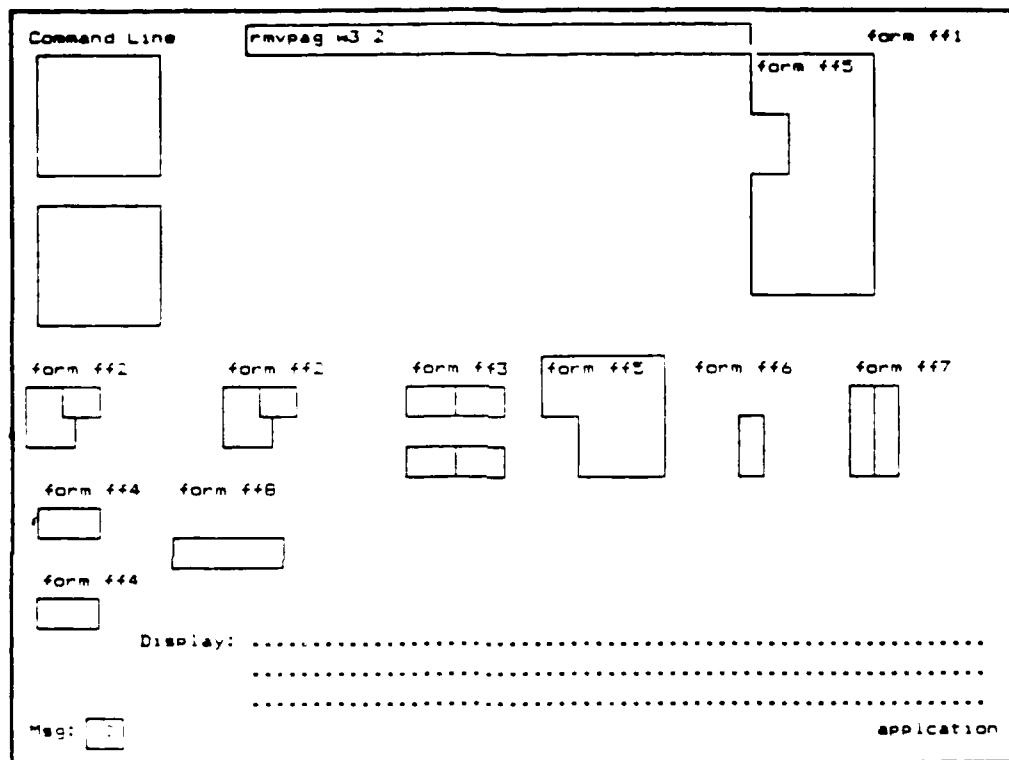


Figure 5-10b (AFTER)

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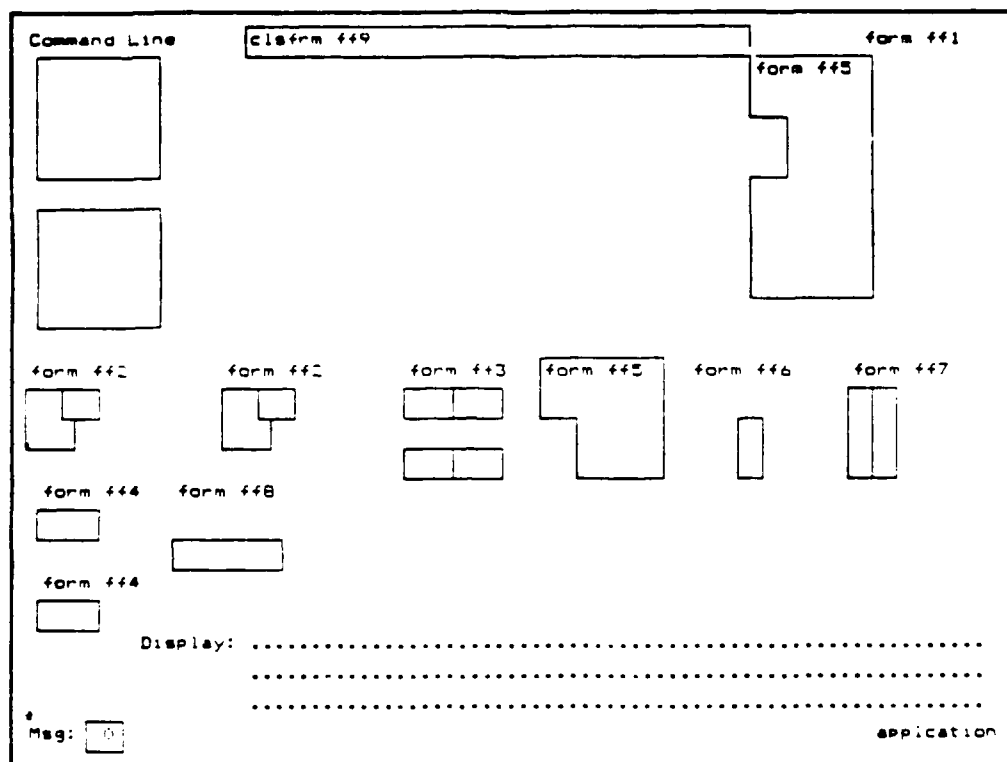


Figure 5-11a (BEFORE)

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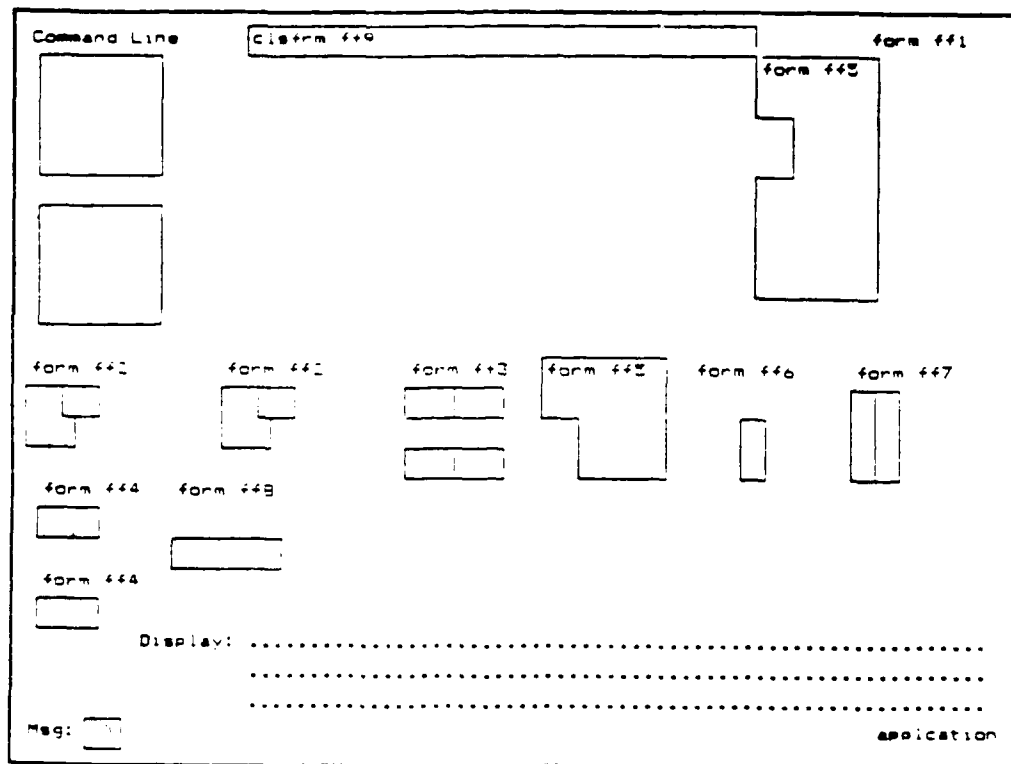


Figure 5-11b (AFTER)

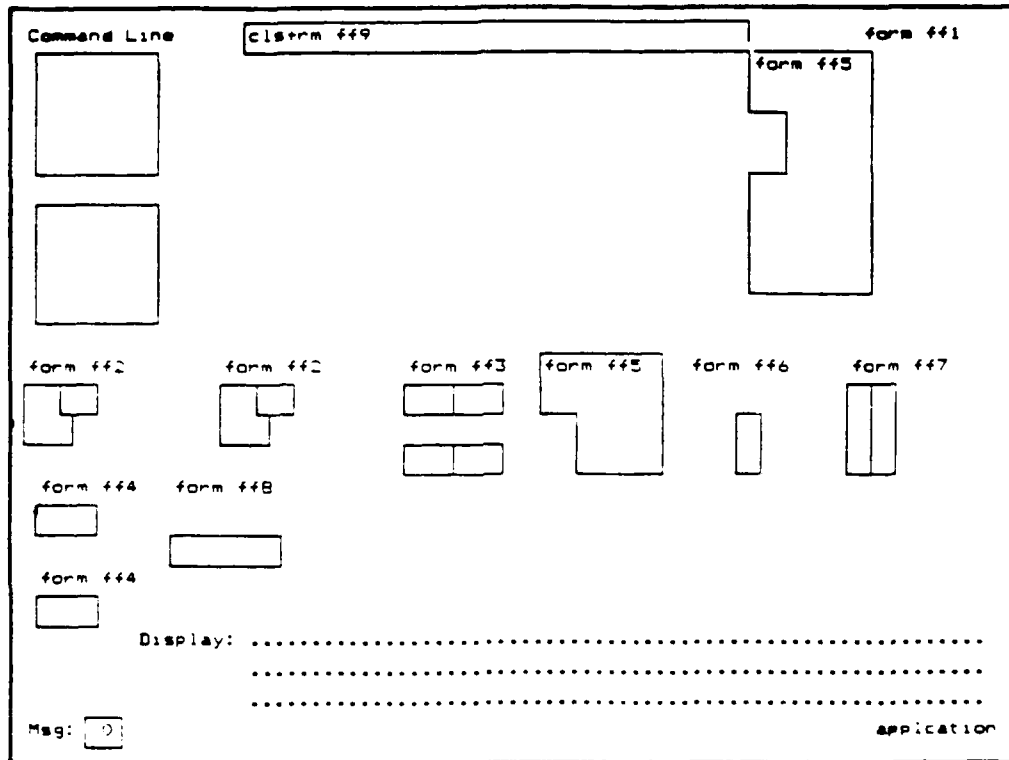


Figure 5-12a (BEFORE)

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Command Line

clstrm ff9

form ff1

form ff5

form ff2

form ff1

form ff3

form ff5

form ff6

form ff7

form ff4

form ff8

form ff4

Display:

Msg: 1 Form is not open

application

Figure 5-12b (AFTER)

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Command Line

pdata ffb.11 HELLO

form ff1

form ff5

form ff2

form ff1

form ff3

form ff5

form ff6

form ff7

form ff4

form ff8

form ff4

Display:

Msg: 1 Form is not open

application

Figure 5-13a (BEFORE)

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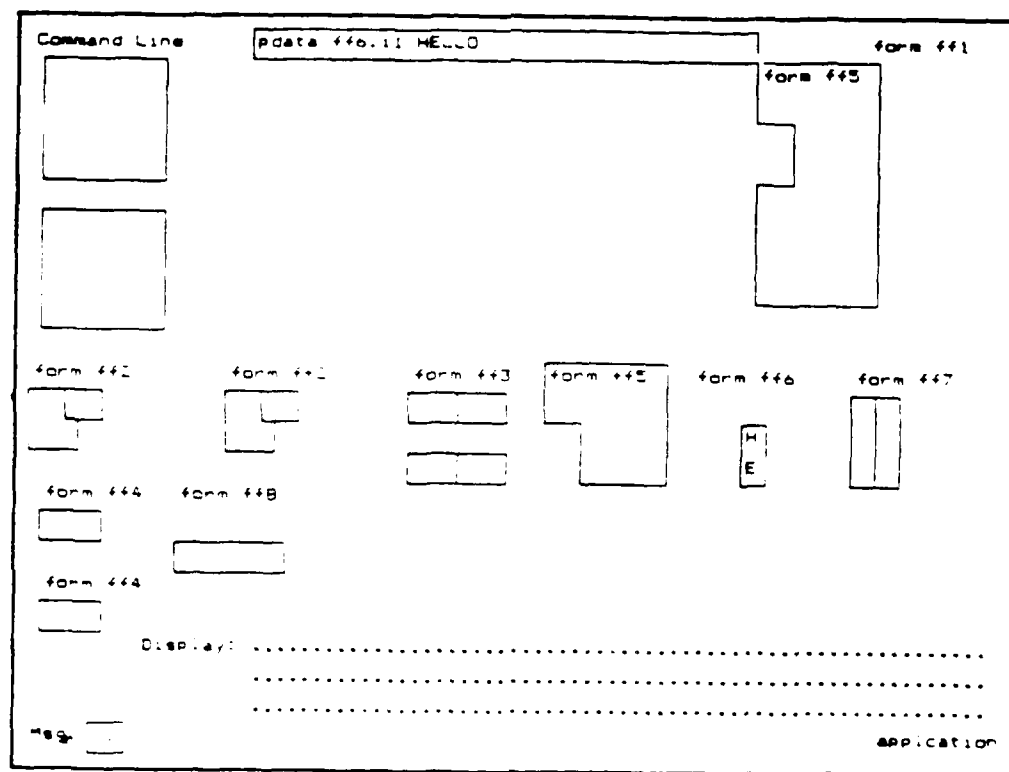


Figure 5-13b (AFTER)

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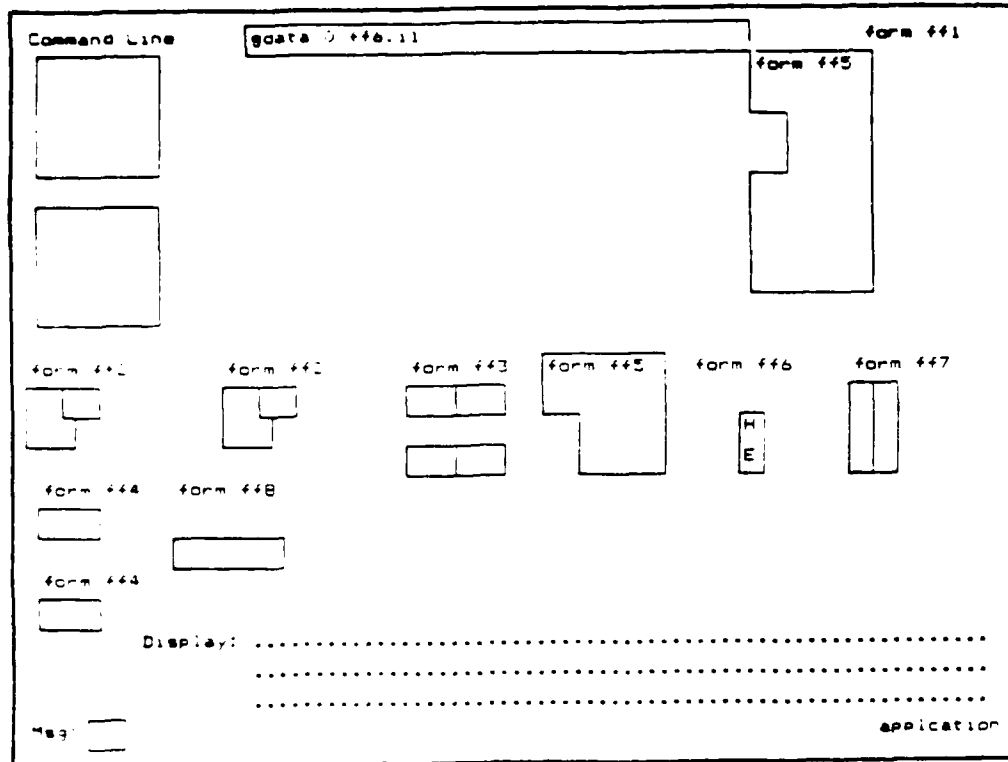


Figure 5-14a (BEFORE)

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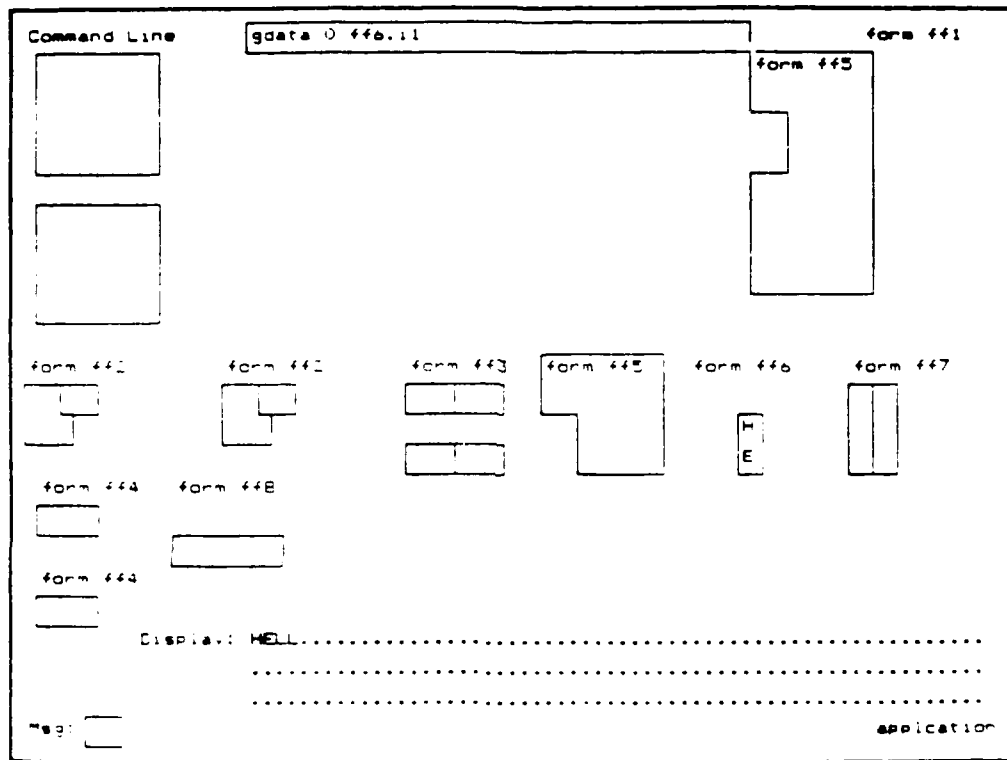


Figure 5-14b (AFTER)

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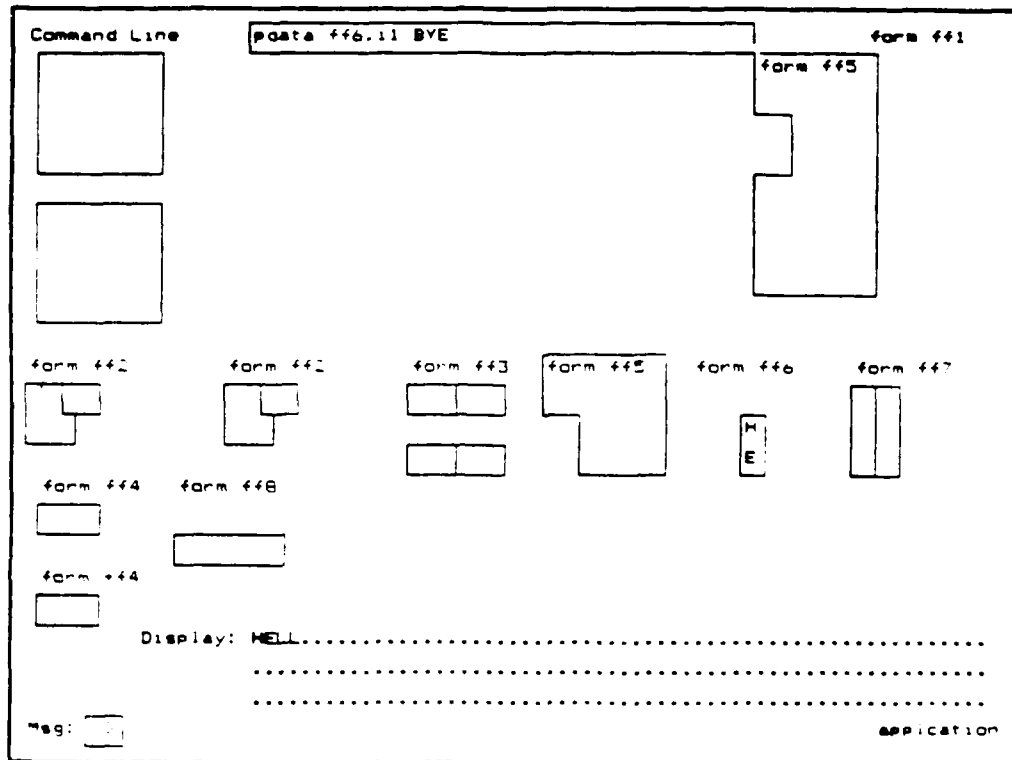


Figure 5-15a (BEFORE)

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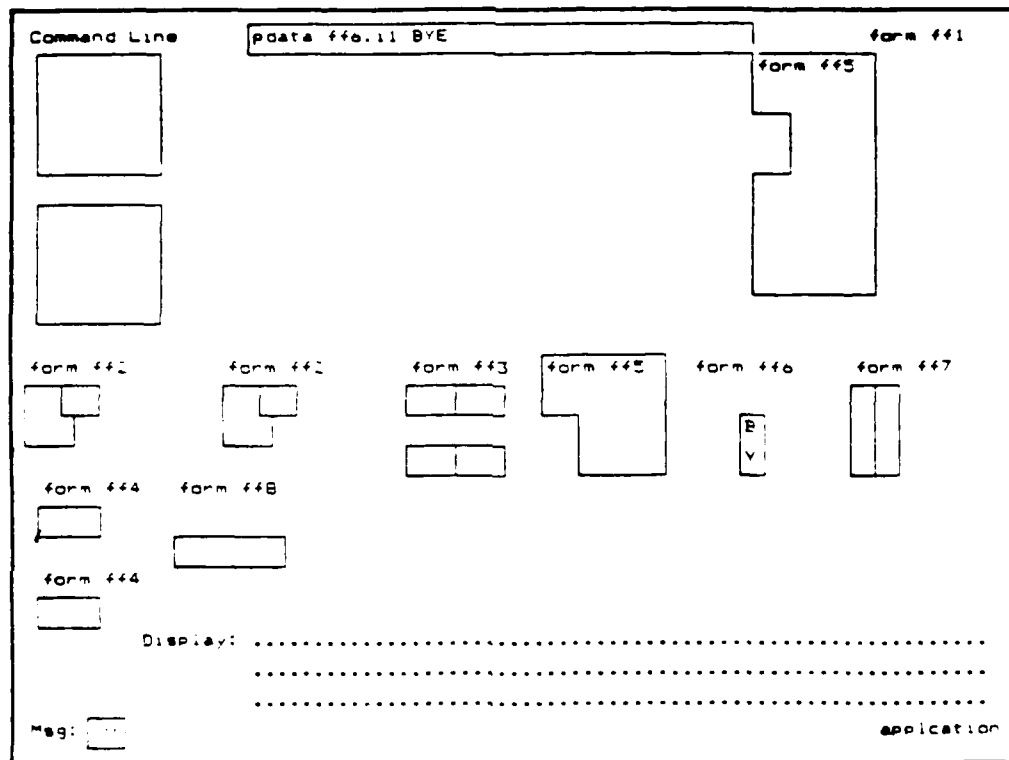


Figure 5-15b (AFTER)

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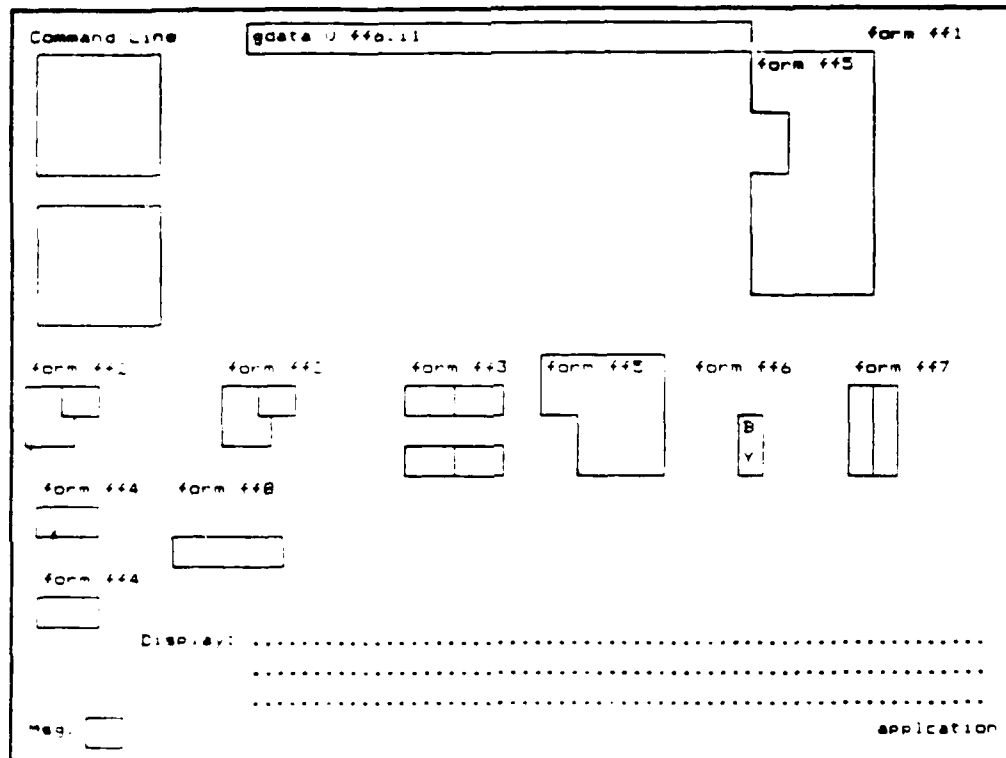


Figure 5-16a (BEFORE)

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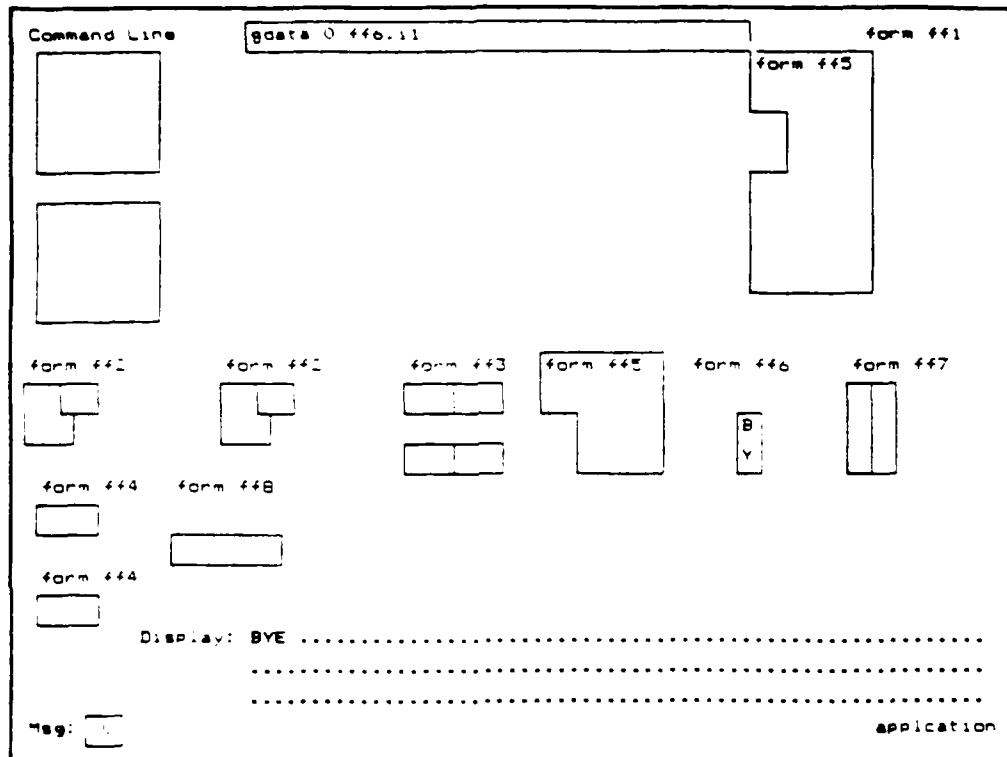


Figure 5-16b (AFTER)

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Command Line

gdata 0 ffe.11

form ffe.11

form ffe.12

form ffe.13

form ffe.14

form ffe.15

form ffe.16

form ffe.17

form ffe.18

form ffe.19

form ffe.20

form ffe.21

form ffe.22

form ffe.23

form ffe.24

form ffe.25

form ffe.26

form ffe.27

form ffe.28

form ffe.29

form ffe.30

form ffe.31

form ffe.32

form ffe.33

form ffe.34

form ffe.35

form ffe.36

form ffe.37

form ffe.38

form ffe.39

form ffe.40

form ffe.41

form ffe.42

form ffe.43

form ffe.44

form ffe.45

form ffe.46

form ffe.47

form ffe.48

form ffe.49

form ffe.50

form ffe.51

form ffe.52

form ffe.53

form ffe.54

form ffe.55

form ffe.56

form ffe.57

form ffe.58

form ffe.59

form ffe.60

form ffe.61

form ffe.62

form ffe.63

form ffe.64

form ffe.65

form ffe.66

form ffe.67

form ffe.68

form ffe.69

form ffe.70

form ffe.71

form ffe.72

form ffe.73

form ffe.74

form ffe.75

form ffe.76

form ffe.77

form ffe.78

form ffe.79

form ffe.80

form ffe.81

form ffe.82

form ffe.83

form ffe.84

form ffe.85

form ffe.86

form ffe.87

form ffe.88

form ffe.89

form ffe.90

form ffe.91

form ffe.92

form ffe.93

form ffe.94

form ffe.95

form ffe.96

form ffe.97

form ffe.98

form ffe.99

Display: BYE

Mag:

Application

Figure 5-17a (BEFORE)

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Command Line form ff1

form ff2

form ff2

form ff3

form ff5

form ff6

form ff7

form ff4

form ff8

form ff4

Display: BYE

Msg: application

Figure 5-17b (AFTER)

UTP620144200
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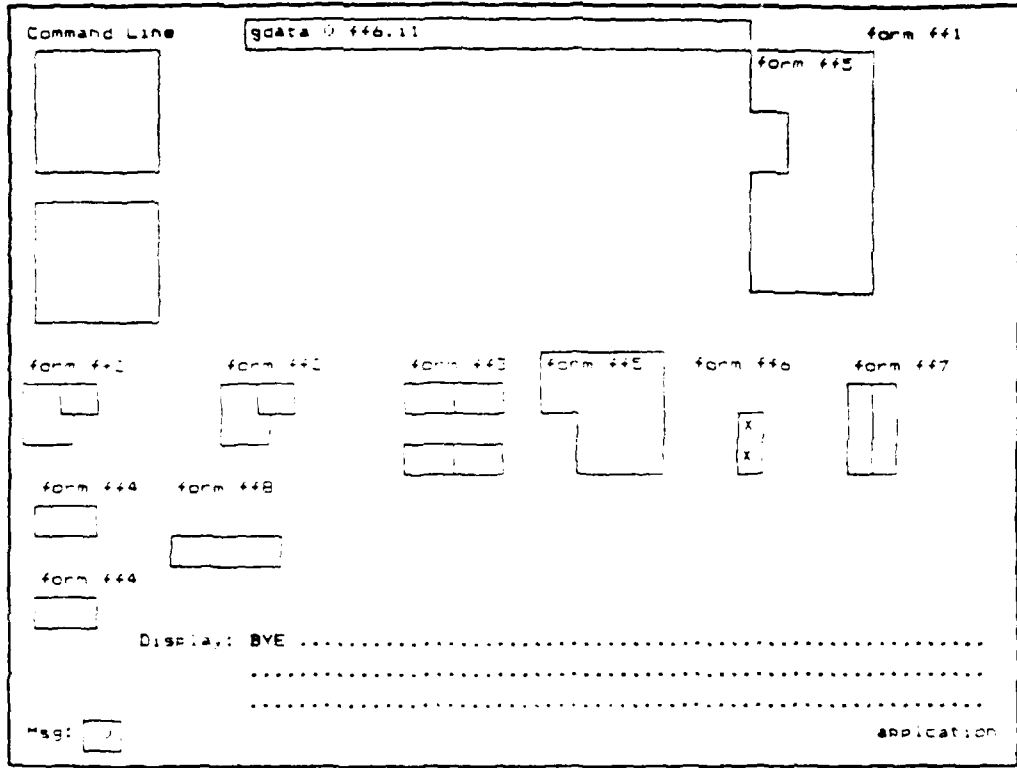


Figure 5-18a (BEFORE)

UTP620144200
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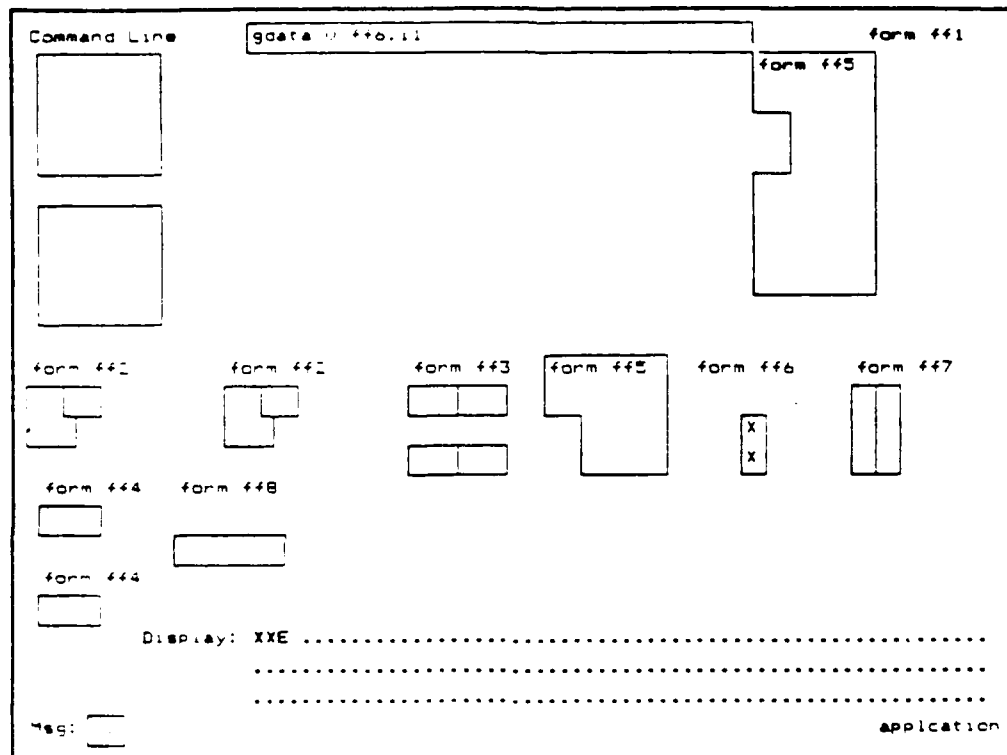


Figure 5-18b (AFTER)

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Figure 5-19a (BEFORE)

Command Line getatt ffb.11 0 form ff1

form ff5

form ff1 form ff2 form ff3 form ff4 form ff6 form ff7

form ff4 form ff8

form ff4

Display: INPUT

Req: Application

Figure 5-19b (AFTER)

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Command Line putatt @@.1: @ OUTPUT form #41

form #42 form #43 form #44 form #45 form #46 form #47

form #48 form #49

form #50

Display: INPUT

.....

.....

Msg: application

Figure 5-20a (BEFORE)

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The diagram shows a window titled "Command Line". At the top, there is a "Print" button and a label "form #1". Below the title bar, there are several input fields: "form #1" (a large vertical rectangle), "form #2" (a small horizontal rectangle), "form #3" (a small horizontal rectangle), "form #4" (a small horizontal rectangle), "form #5" (a small horizontal rectangle), "form #6" (a small horizontal rectangle), and "form #7" (a small horizontal rectangle). Below these fields, there is a "Display" section with three lines of dotted lines. At the bottom left, there is a "Msg:" label and a small input field. At the bottom right, there is a "application" label.

Figure 5-20b (AFTER)

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The image shows a document page with various forms and handwritten annotations:

- Top Left:** A label "Command Line" above a series of horizontal lines.
- Top Center:** A rectangular box labeled "START TIME" and "E1".
- Top Right:** A label "form #1" above a large rectangular area.
- Middle Section:** Several horizontal lines, some with small handwritten marks like "I" or "X".
- Bottom Left:** Labels "form #4" and "form #5" above horizontal lines.
- Bottom Center:** A label "DISP" followed by a long dotted line.
- Bottom Right:** A label "APPLICATOR" at the bottom right corner.

Figure 5-21a (BEFORE)

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Command Line

Buffer 440.11 17E17

form 441

form 442

form 443

form 444

form 445

form 446

form 447

form 448

form 449

form 450

Display

Application

Figure 5-21b (AFTER)

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Command Line putbak ffb u WHITE form f41

form f42 form f43 form f44 form f45 form f46 form f47

form f48 form f49

Display

.....

.....

APPLICATIO

Figure 5-22a (BEFORE)

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Command Line

p:\dbm > @b > WHITE

form 111

form 112

form 113

form 114

form 115

form 116

form 117

APPLICATION

Figure 5-22b (AFTER)

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1 November 1985

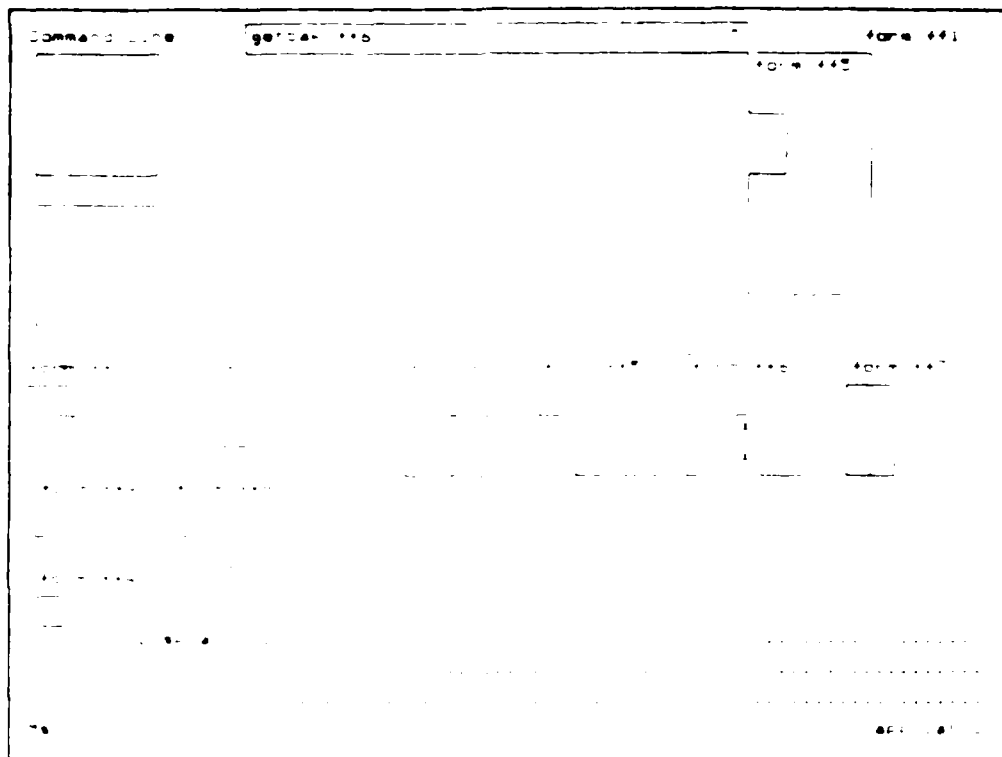


Figure 5-23a (BEFORE)

UTP620144200
1 November 1985

Command Line

getben ++0

form ++1

form ++2

form ++3

form ++4

form ++5

form ++6

form ++7

Display: WHITE

tag:

application

Figure 5-23b (AFTER)

UTP620144200
1 November 1985

[illegible]

Figure 5-24a (BEFORE)

UTP620144200
1 November 1985

Command Line tmpatt ++5.1: 1 OUTPUT form ff1

form ff2 form ff3

form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display: OUTPUT

Mag: ☐ application

Figure 5-24b (AFTER)

UTP620144200
1 November 1985

Command Line tmpatt f45.11 1 OUTPUT form f41

(Press PF16 key)

form f43

form f42 form f42 form f43 form f45 form f46 form f47

form f44 form f48

form f44

Display: OUTPUT

Req: application

Figure 5-25a (BEFORE)

UTP620144200
1 November 1985

Command Line tmpatt: ff5.11 1 OUTPUT form ff1

form ff3

form ff2 form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display: type = 1, row = 1, col = 17, fen = PSCREEN, SCREEN(1), FF1, I4:

Msg: ☐ application

Figure 5-25b (AFTER)

UTP620144200
1 November 1985

Command Line: tmpbak f45 0 BLACK

form f41

form f43

form f42

form f42

form f43

form f45

form f46

form f47

form f44

form f48

form f44

Display: type = I, row = 1, col = 17, fqn = PSUREN.SCREEN(1).FF1.I41

Msg: 0

application

Figure 5-26a (BEFORE)

UTP620144200
1 November 1985

Command Line form f41

form f43

form f42 form f42 form f43 form f45 form f46 form f47

form f44 form f48

form f44

Display: BLACK

Mag: application

Figure 5-26b (AFTER)

UTP620144200
1 November 1985

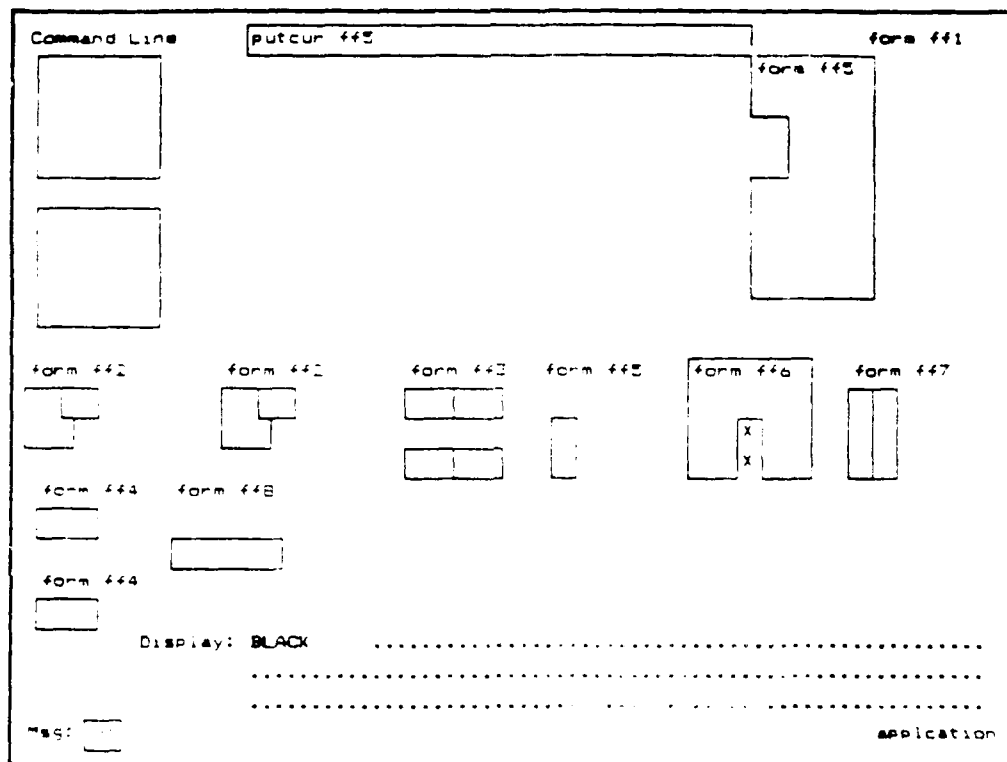


Figure 5-27a (BEFORE)

UTP620144200
1 November 1985

Command Line putcur f43 form f41

(PF16 key was entered)

form f42 form f43 form f44 form f45 form f46 form f47

form f44 form f48

form f44

Display:

Msg: application

Figure 5-27b (AFTER)

UTP620144200
1 November 1985

Command Line putcur ++3 form ++1

form ++2 form ++3 form ++4 form ++5 form ++6 form ++7

form ++8 form ++9

form ++10

Display: type = F, row = 1, col = 1, fen = PSOREN, SCREEN(1), FF1, FF31

msg: application

Figure 5-27c (AFTER 5-27b)

UTP620144200
1 November 1985

Command Line parton 2 form #41

form #45

form #41 form #42 form #43 form #44 form #45 form #46 form #47

form #48 form #49

form #50

Display: type = F, row = 1, col = 1, fen = PSCREEN, SCREEN(1), FF1, FF31

msg: application

Figure 5-28a (BEFORE)

UTP620144200
1 November 1985

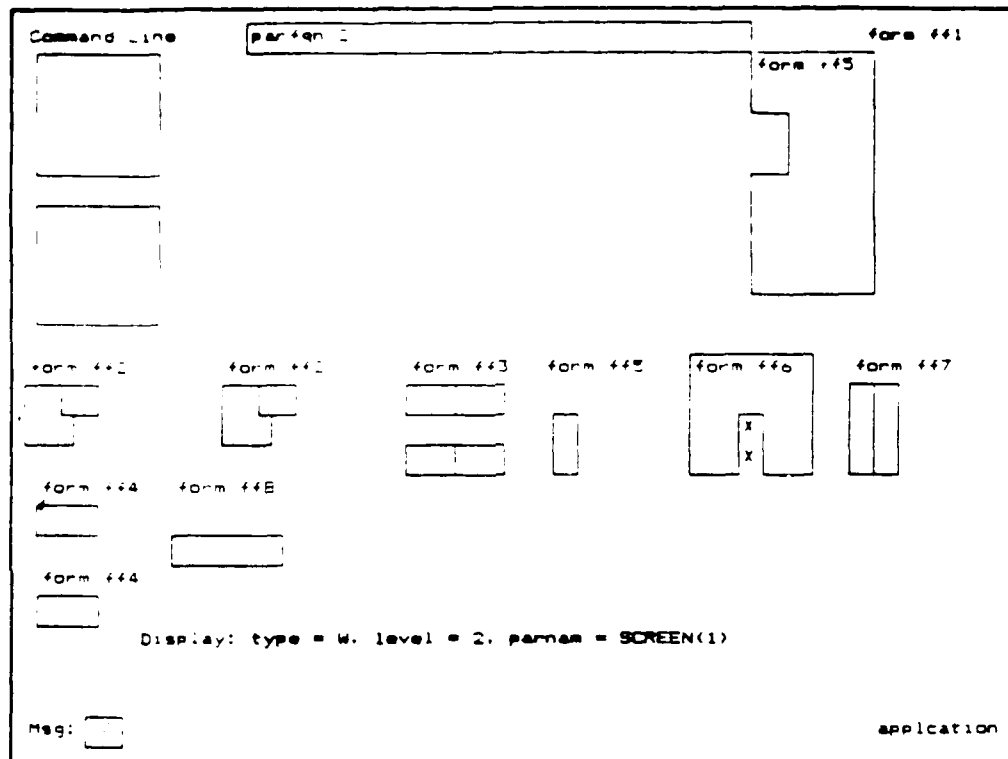


Figure 5-28b (AFTER)

UTP620144200
1 November 1985

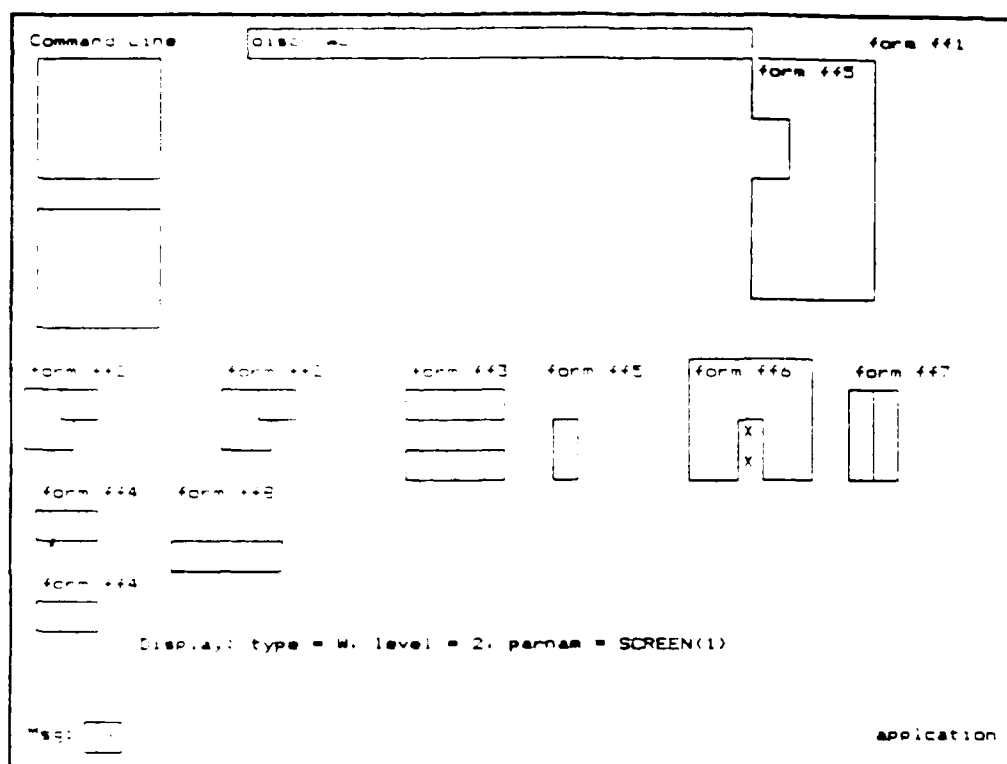


Figure 5-29a (BEFORE)

Command Line 0.scr =3 form ++1

(May only tab to items in
ff5 and the H50 item)
HIT ENTER

form ++2 form ++3 form ++4 form ++5 form ++6 form ++7

form ++4 form ++8

form ++4

Display:

Msg: APPLICATION

Figure 5-29b (AFTER)

UTP620144200
1 November 1985

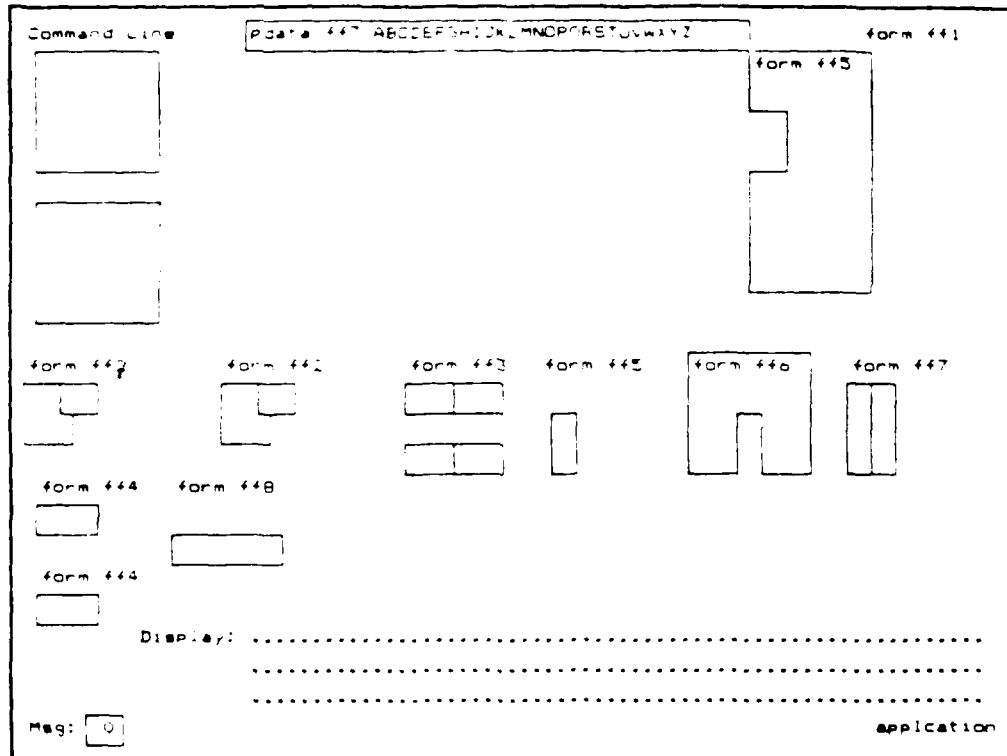


Figure 5-30a (BEFORE)

UTP620144200
1 November 1985

Command Line pdate f47 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f41

(Hit FF mode key to
get in scrll/page mode)

form f42 form f42 form f43 form f45 form f46 form f47

form f44 form f48

form f44

Display:

Msg: 01 application

Figure 5-30b (AFTER)

UTP620144200
1 November 1985

Command Line pdata f47 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f41

(Hit PF5 SCROLL up)

form f42 form f42 form f43 form f45 form f46 form f47

form f44 form f48

form f44

Display:

Mag: scroll/page

Figure 5-31a (BEFORE)

Command Line pdata f17 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f11

form f12

form f12

form f13

form f15

form f16

X
X

form f17

E	F
I	J
M	N

form f14

form f18

form f14

Display:

.....

.....

Msg: 0scrll/page

Figure 5-31b (AFTER)

AD-A182 543

INTEGRATED INFORMATION SUPPORT SYSTEM (IIS) VOLUME 8

2/2

USER INTERFACE SUBS (U) GENERAL ELECTRIC CO

SCHENECTADY NY PRODUCTION RESOURCES CONSU

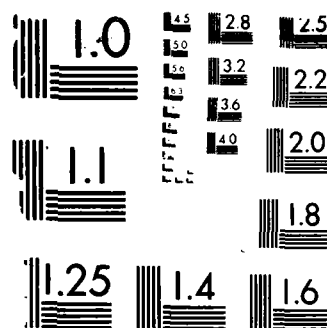
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F/G 12/5

NL

END



MICROCOPY RESOLUTION TEST CHART

U.S. GOVERNMENT PRINTING OFFICE: 1963 O 344-104

UTP620144200
1 November 1985

Command Line pdata f17 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f11

(HIT PF6 SCROLL DOWN)

form f12 form f12 form f13 form f15 form f16 form f17

form f14 form f18

form f14

Display:

Msg: 0 scroll/page

Figure 5-32a (BEFORE)

UTP620144200
1 November 1985

Command Line pdata f47 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f41

form f43

form f42 form f42 form f43 form f45 form f46 form f47

form f44 form f48

form f44

Display:

Msg: 0 scroll/page

Figure 5-32b (AFTER)

Command Line pdata ff7 ABCDEFGHIJKLMNOPQRSTUVWXYZ form ff1

(Hit PF7 SCROLL LEFT)

form ff5

form ff2 form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display:
.....
.....

Msg: 0 scroll/page

Figure 5-33a (BEFORE)

UTP620144200
1 November 1985

Command Line pdata f47 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f41

form f45

form f42 form f42 form f43 form f45 form f46 form f47

form f44 form f48

form f44

Display:

Mag: ☐ 0

scri11/page

Figure 5-33b (AFTER)

Command Line pdata ff7 ABCDEFGHIJKLMNOPQRSTUVWXYZ form ff1

(Hit PF8 Scroll Right)

form ff2 form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display:

Mag: 0

scri1/page

Figure 5-34a (BEFORE)

Command Line pdate f47 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f41

form f42 form f42 form f43 form f45 form f46 form f47

form f44 form f48

form f44

Display:
.....
.....

Msg: 0 scr11/page

Figure 5-34b (AFTER)

UTP620144200
1 November 1985

Command Line pdata f17 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f11

(Hit PF9 Page UP)

form f12

form f12

form f13

form f15

form f16

X
X

form f17

A	B
E	F
I	J

form f14

form f18

form f14

Display:

.....

.....

Msg: 0

scrll/page

Figure 5-35a (BEFORE)

UTP620144200
1 November 1985

Command Line pdata f47 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f41

form f45

form f42 form f42 form f43 form f45 form f46 form f47

form f44 form f48

form f44

Display:

Mag: 0

scr11/page

Figure 5-35b (AFTER)

UTP620144200
1 November 1985

Command Line pdata f47 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f41

(HIT PF10 PAGE DOWN) form f43

form f42 form f42 form f43 form f45 form f46 form f47

form f44 form f48

form f44

Display:

Mag: scri11/page

Figure 5-36a (BEFORE)

UTP620144200
1 November 1985

Command Line pdata f17 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f11

form f12 form f12 form f13 form f15 form f16 form f17

form f14 form f18

form f14

Display:

Reg: ☐ 0

scri1/page

Figure 5-36b (AFTER)

Command Line pdata f17 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f11

(Hit PF11 Page LEFT)

form f13

form f12 form f12 form f13 form f15 form f16 form f17

form f14 form f18

form f14

Display:

neg: 0 scroll/page

Figure 5-37a (BEFORE)

UTP620144200
1 November 1985

Command Line pdata f47 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f41

form f42

form f42

form f43

form f45

form f46

form f47

C	D
B	H
K	L

form f44

form f48

form f44

Display:

.....

.....

Mag: 0

scri11/page

Figure 5-37b (AFTER)

Command Line pdata f17 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f11

(Hit PF12 Page Right)

form f12

form f12

form f13

form f15

form f16

X
X

form f17

C	D
S	H
K	L

form f14

form f18

Display:
.....
.....

Mag: 0scri11/page

Figure 5-38a (BEFORE)

UTP620144200
1 November 1985

Command Line pdate f47 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f41

form f42 form f42 form f43 form f43 form f46 form f47

form f44 form f48

form f44

Display:
.....
.....

Msg: ☐ 0 scroll/page

Figure 5-38b (AFTER)

Command Line pdate f17 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f11

(Hr PF11 Page Left)

form f12 form f12 form f13 form f15 form f16 form f17

form f14 form f18

form f14

Display:

Mag: ☐ scr11/page

Figure 5-39a (BEFORE)

Command Line pdata f17 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f11

(Hit PF11 Page Left)

form f15

form f12 form f12 form f13 form f15 form f16 form f17

form f14 form f18

form f14

Display:

Mag: ☐ 0

scr11/page

Figure 5-39b (AFTER)

UTP620144200
1 November 1985

Command Line pdate f17 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f11

(Hit PF11 PAGE LEFT)

form f12 form f12 form f13 form f15 form f16 form f17

form f14 form f18

form f14

Display:
.....
.....

Msg: ☐ End of scrolling section reached scroll/page

Figure 5-39c (AFTER 5-39b)

UTP620144200
1 November 1985

Command Line pdate 117 ABCDEF@HJILMNOPQRSTUVWXYZ form 111

(Hit PF9 PAGE UP)

form 112 form 112 form 113 form 115 form 116 form 117

form 114 form 118

form 114

Display:
.....
.....

Mag: 0 scroll/page

Figure 5-40a (BEFORE)

UTP620144200
1 November 1985

Command Line pdata f17 ABCDEFGHIJKLMNOPQRSTUVWXYZ form f11

(Hit PF9 PAGE UP)

form f12 form f12 form f13 form f15 form f16 form f17

form f14 form f18

form f14

Display:
.....
.....

Msg: 0 scroll/page

Figure 5-40b (AFTER)

Command Line pdate f17 ABCDEF@H I J K L M N O P Q R S T U V W X Y Z form f11

(Hit PF 10 Page Down)

form f15

form f12 form f12 form f13 form f15 form f16 form f17

form f14 form f18

form f14

Display:
.....
.....

Msg: 1 End of scrolling section reached scrl1/page

Figure 5-40c (AFTER 5-40b)

UTP620144200
1 November 1985

Command Line pdate 117 ABCDEFHIJKLMNOPSTUVWXYZ form 111

form 112 form 112 form 113 form 115 form 116 form 117

form 114 form 118

form 114

Display:

Mag: ☐ 0 scrib/page

Figure 5-40d (AFTER 5-40c)

Command Line inqldv form ff1

form ff5

form ff1 form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display:

Mag: ☐ scr11/page

Figure 5-41a (BEFORE)

Command Line inqldv form ff1

form ff5

form ff2 form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display: logical device number = 6

.....

.....

Msg: 0 scrl/page

A	B
E	F
I	J

X	X
---	---

Figure 5-41b (AFTER)

Command Line opnidv form ff1

form ff5

form ff2 form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display: logical device number = 6

.....

.....

Msg: ☐ scr11/page

Figure 5-42a (BEFORE)

Command Line form ff1

form ff2 form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display: Opened and changed to logical device: 25

.....

.....

Msg: 0 scrll/page

Figure 5-42b (AFTER)

Command Line form ff1

form ff2 form ff2 form ff3 form ff5 form ffe form ff7

form ff4 form ff8

form ff4

Display: Opened and changed to logical device: 25

.....

.....

Msg: scrll/page

Figure 5-43a (BEFORE)

Command Line form ff1

(all fields non enterable)

form ff2 form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display: Opened and changed to logical device: 25

.....

.....

Mag: scroll/page

Figure 5-43b (AFTER)

UTP620144200
1 November 1985

Command Line form ff1

(Hit PF1 MODE KEY till WINDOW MGR MODE)

form ff2 form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display: Opened and changed to logical device: 25

.....

.....

Msg: ☐ scroll/page

Figure 5-44a (BEFORE)

UTP620144200
1 November 1985

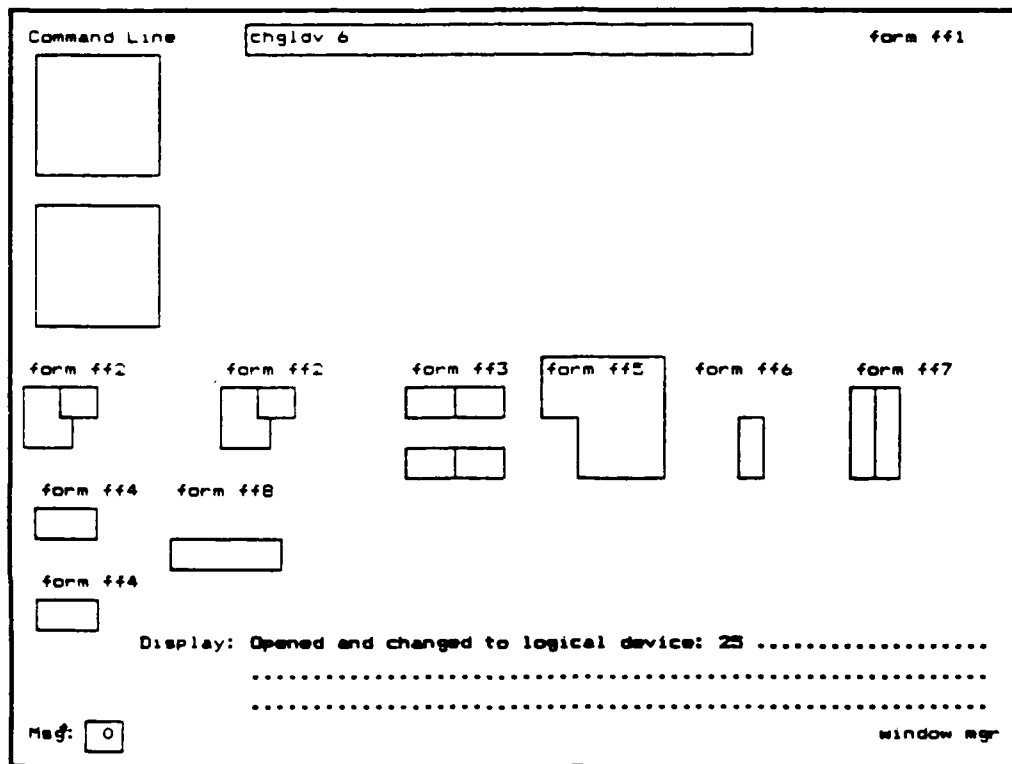


Figure 5-44b (AFTER)

Command Line form ff1

(Hit PF14 SELECT AP)

form ff2 form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display: Opened and changed to logical device: 25

.....

.....

Reg: window size

Figure 5-45a (BEFORE)

Command Line form ffl

☐

☐

form ffl2 form ffl2 form ffl3 form ffl5 form ffl6 form ffl7

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

form ffl4 form ffl8

☐ ☐

form ffl4

☐

Display: Opened and changed to logical device: 23

.....

.....

Msg: ☐ Window is selected window agr

Figure 5-45b (AFTER)

UTP620144200
1 November 1985

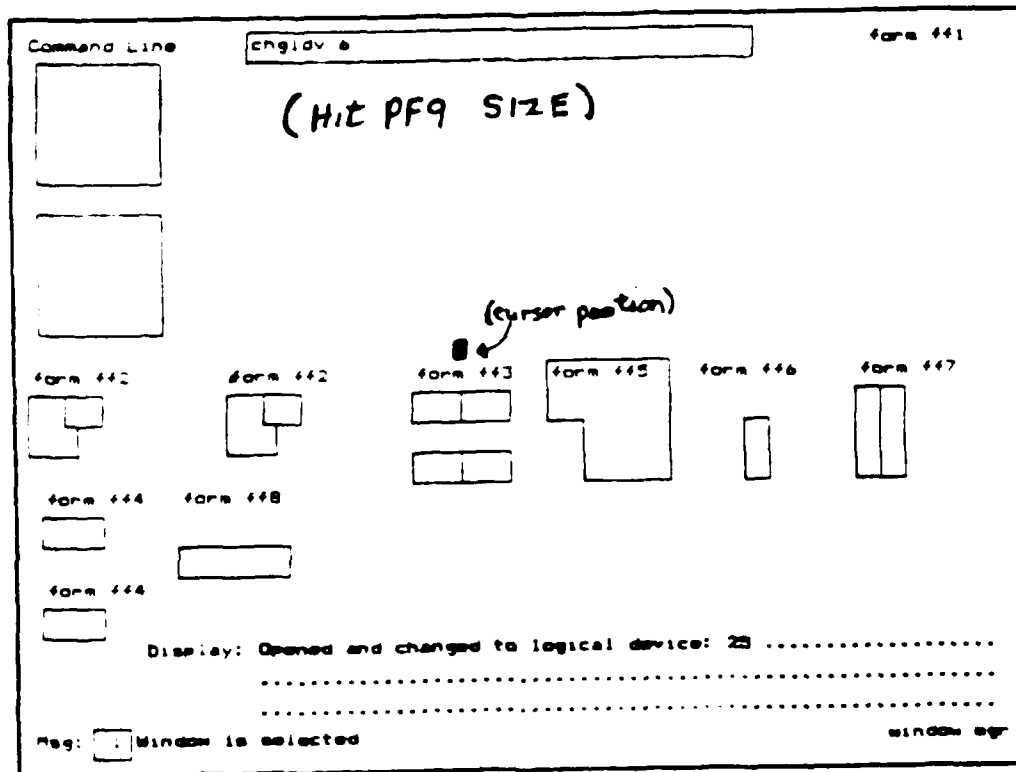


Figure 5-46a (BEFORE)

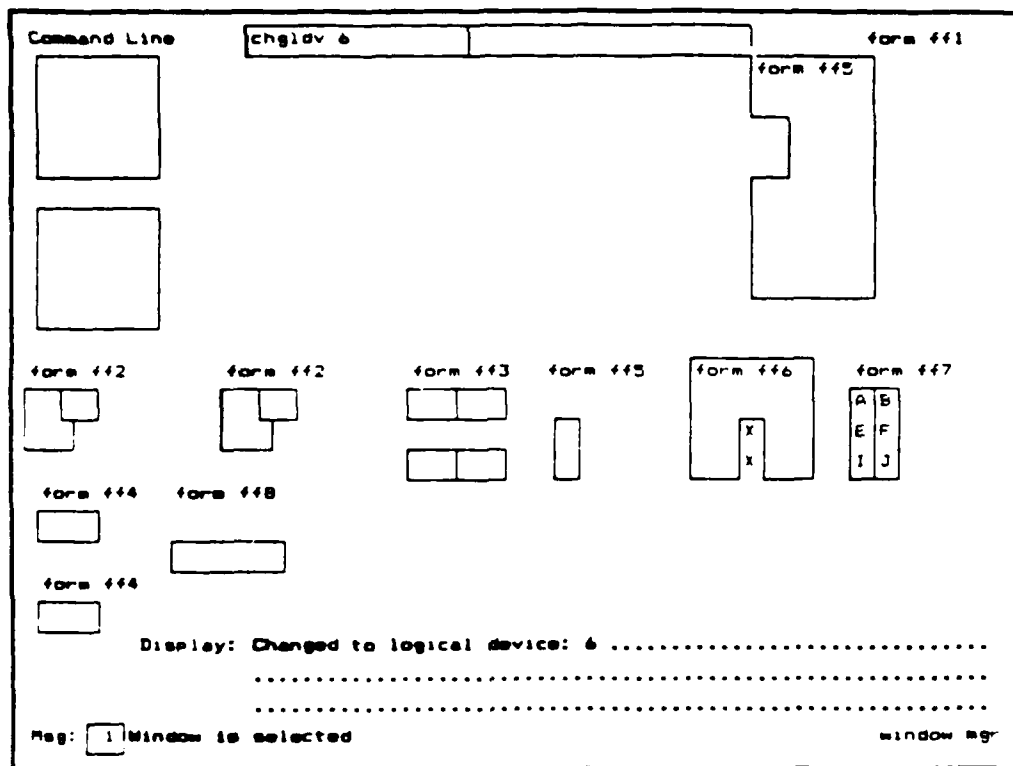


Figure 5-46b (AFTER)

UTP620144200
1 November 1985

Command Line chgldv 6 form ff1

(Press PF10 Location)
with cursor here

form ff2 form ff2 form ff3 form ff5 form ff6 form ff7

form ff4 form ff8

form ff4

Display: Changed to logical device: &

Msg: 1 Window is selected window msg

Figure 5-47a (BEFORE)

UTP620144200
1 November 1985

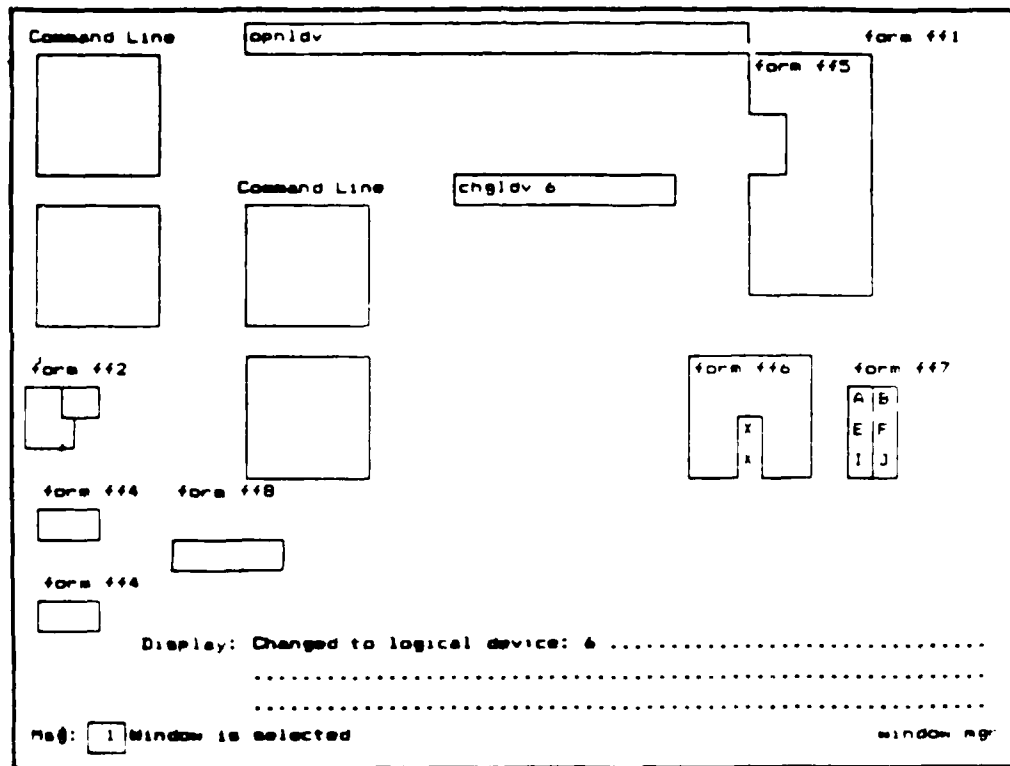


Figure 5-47b (AFTER)

UTP620144200
1 November 1985

Command Line addfrm w3 f11 form f11

form f15

Command Line CHG..F..6

form f12

form f14 for

form f14

form f16

form f17

Display:

Rec:

window mgr

A	B
E	F
I	J

X
X

Figure 5-48a (BEFORE)

UTP620144200
1 November 1985

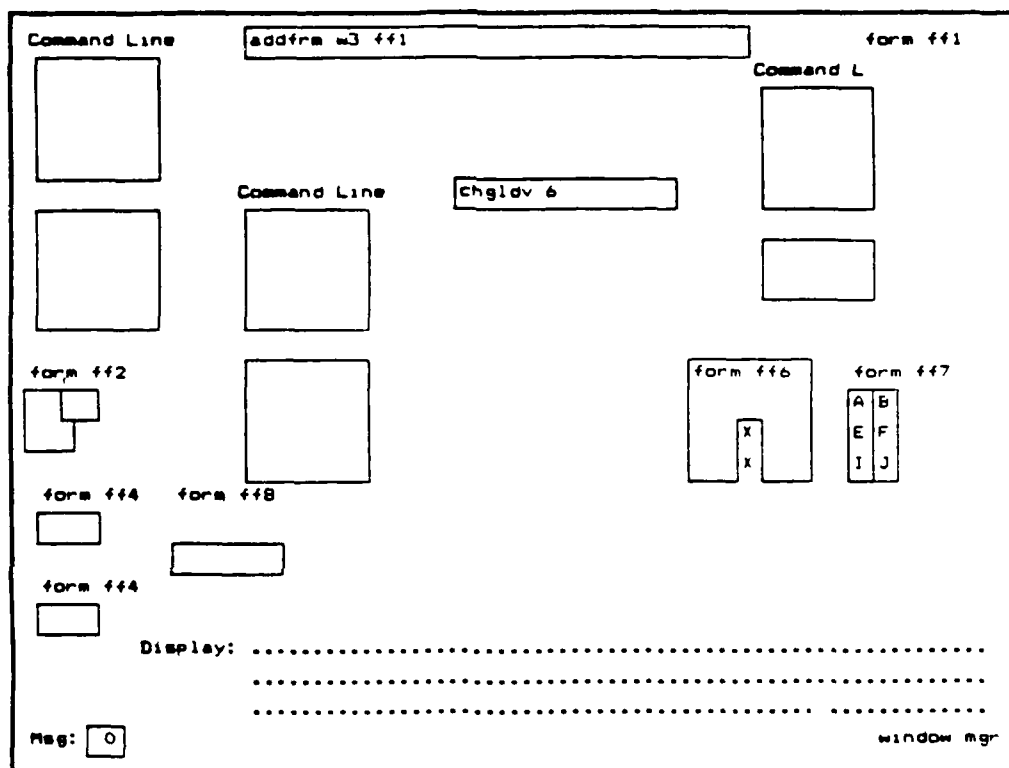


Figure 5-48b (AFTER)

1 November 1985

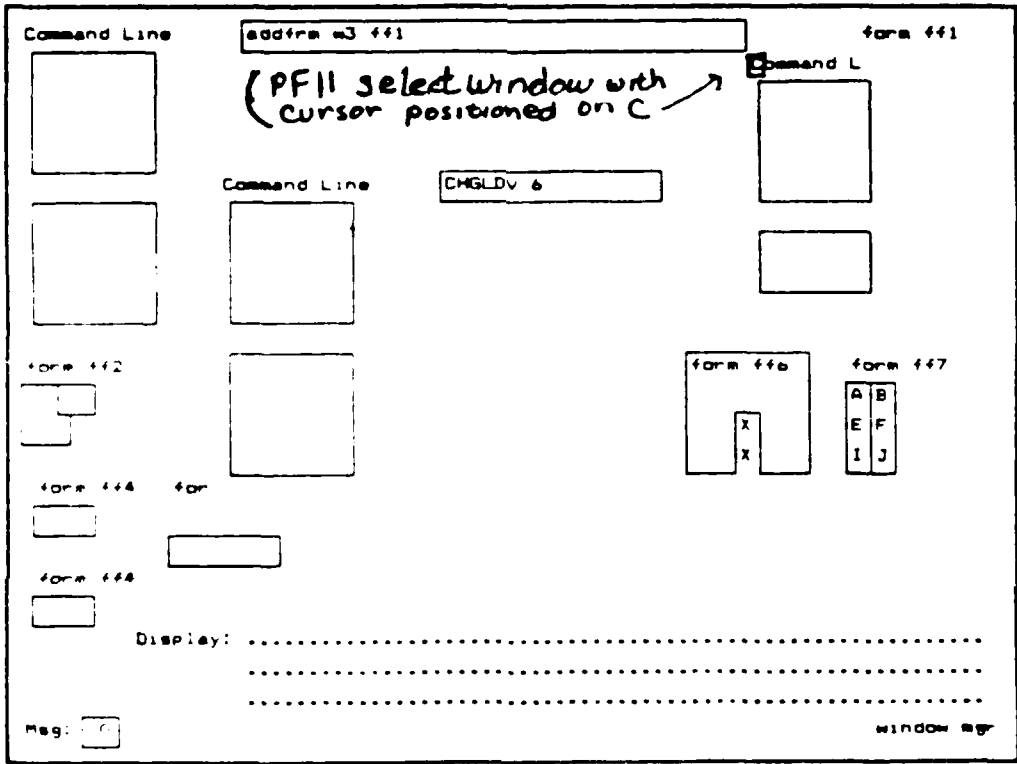


Figure 5-49a (BEFORE)

UTP620144200
1 November 1985

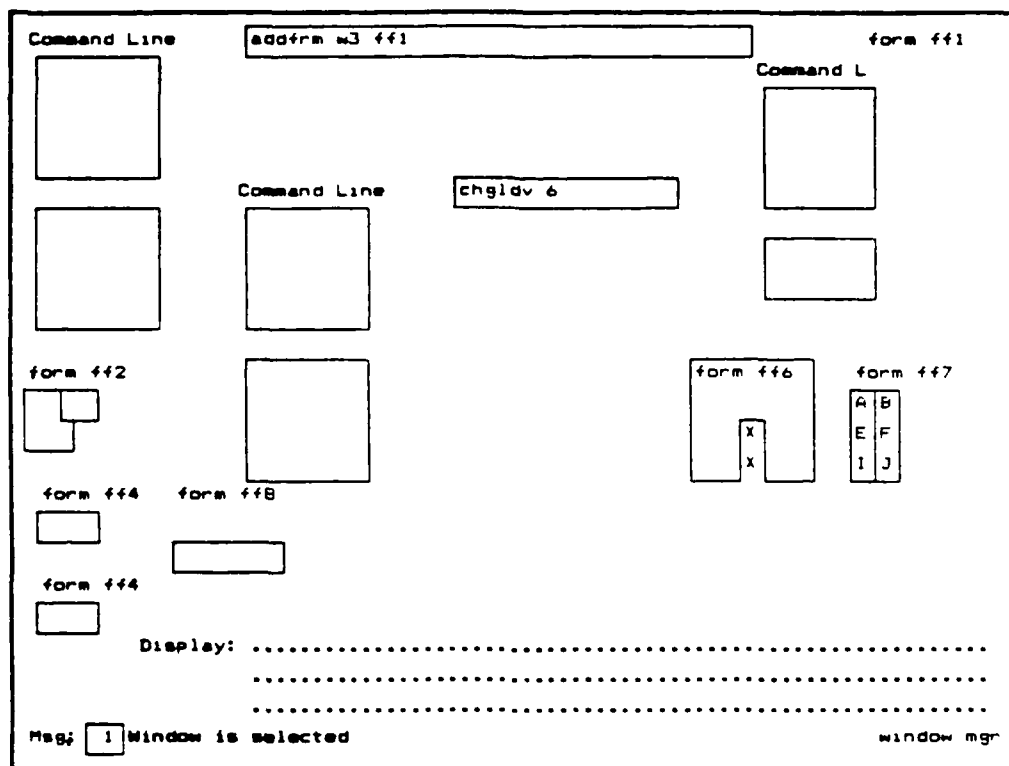


Figure 5-49b (AFTER)

UTP620144200
1 November 1985

Command Line addfrm w3 ff1

(Press PF5 Page UP)
with cursor here

Command L

Command Line CHGLDV 6

form ff1

form ff2

form ff4 for

form ff4

form ff6

form ff7

Display:

Msg: 1 Window is selected

window mgr

A	B
E	F
I	J

X
X

Figure 5-50a (BEFORE)

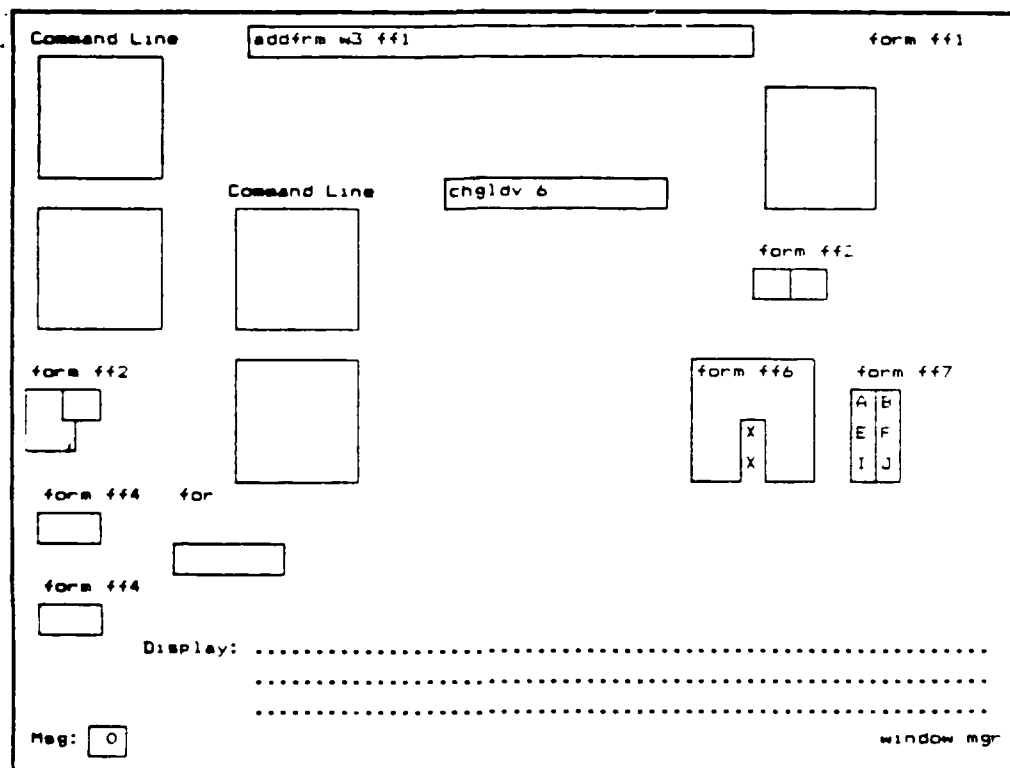


Figure 5-50b (AFTER)

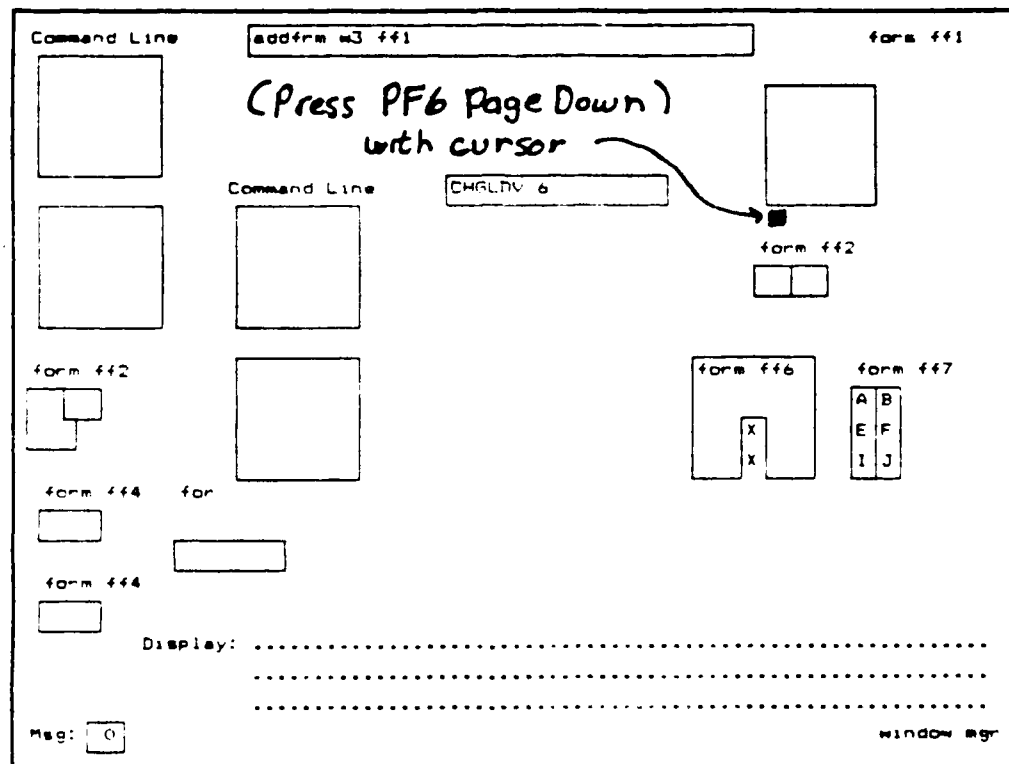


Figure 5-51a (BEFORE)

UTP620144200
1 November 1985

Command Line addfrm w3 ff1 form ff1

Command Line chgldv 6

form ff2

form ff4 form ff8

form ff4

form ff6

form ff7

Display:

Mag: 0 window mgr

A	B
E	F
I	J

X
X

Figure 5-51b (AFTER)

UTP620144200
1 November 1985

Command Line addfrm w3 ff1 (PRESS PF15 Home View) form ff1

Command Line chg:dv e

form ff2

form ff4 form ff8

form ff6

form ff7

Display:
.....
.....

Msg: 0 window mgr

Figure 5-52a (BEFORE)

UTP620144200
1 November 1985

Command Line form ff1

Command L

Command Line

form ff2

form ff4 for

form ff4

form ff6

form ff7

M	E
E	F
I	J

Display:
.....
.....

Msg: window mgr

Figure 5-52b (AFTER)

UTP620144200
1 November 1985

Command Line form f11

(PRESS PF7 Age left)
with cursor on L

Command

Command Line

form f12

form f14 for

form f14

form f14

form f16

form f17

Display:

Mag:

window mgr

Figure 5-53a (BEFORE)

UTP620144200
1 November 1985

Command Line form f+1

Line

Command Line

form f+2

form f+4 for

form f+4

form f+6

form f+7

A	B
E	F
I	J

Display:
.....
.....

Reg: window mgr

Figure 5-53b (AFTER)

UTP620144200
1 November 1985

Command Line addtra m3 f41 form f41

(PRESS PFB Page Right)
with cursor on L

Command Line chgldv e

form f42

form f44 for

form f44

form f46

form f47

Display:

Reg: 0 window reg

A	B
E	F
I	J

Figure 5-54a (BEFORE)

UTP620144200
1 November 1985

Command Line form f41

Command L

Command Line

form f42

form f44 for

form f44

Display:
.....
.....

Reg: window mgr

form f46

form f47

A	B
E	F
I	J

Figure 5-54b (AFTER)

1 November 1985

WINDOW EDIT

Command Line: addr m w3 ff1

(Press PF12 UNSELECT WINDOW)

form ff2

form ff4

form ff4

form ff4

form ff1

form ff3

form ff3

Display:

Msg: 0

Figure 5-55a (BEFORE)

UTP620144200
1 November 1985

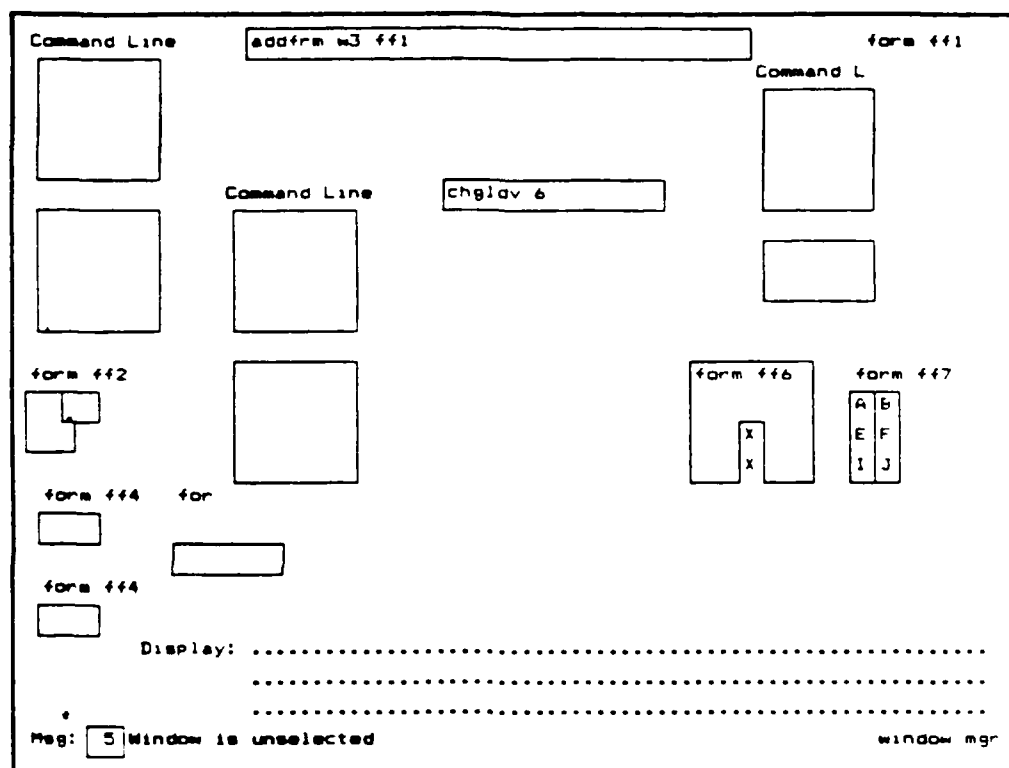


Figure 5-55b (AFTER)

UTP620144200
1 November 1985

Command Line form ff1

(PRESS PF13 VIS Function)

Command Line Command L

form ff2

form ff4 for

form ff4

form ff6

form ff7

Display:

Msg: ☐ Window is unselected window mgr

Figure 5-56a (BEFORE)

UTP620144200
1 November 1985

I I S S T E S T B E D V E R S I O N 2.0

DATE: TIME: USER ID: ROLE:

FUNCTION: DEVICE TYPE: DEVICE NAME:

Msg: Window is selected

Window mgr

Figure 5-56b (AFTER)

UTP620144200
1 November 1985

```

I I S S   T E S T   B E D   V E R S I O N   2.0
-----
DATE: 6/26/85    TIME: 10:58:00    USER ID: MORENC    ROLE: MANAGER

FUNCTION: WINDOW    ,  DEVICE TYPE:      DEVICE NAME:

Msg: 3 Window is selected                                window mgr

```

Figure 5-57a (BEFORE)

UTP620144200
1 November 1985

Window Manager

Device				Window Name	Location		Display Size		Viewport Offset	
Application	Type	Name	Pri		Row	Col	W	D	Row	Col
SDARTESTZZ	VT100	TT:	1		6	17	36	11	0	0
SDARTESTZZ				SCREEN	1	1	80	23	0	0
SDARTESTZZ				W3	2	60	10	8	0	0
SDARTESTZZ	VT100	TT:	2		1	1	80	24	0	0
SDARTESTZZ				SCREEN	1	1	80	23	0	0
SDARTESTZZ				W3	2	60	10	8	0	0
SDARTESTZZ				W3	2	60	10	8	0	0
MENU	VT100	TT:	3		1	1	80	24	0	0
MENU				SCREEN	1	1	80	23	0	0

Msg: ☐ U

window mgr

Figure 5-57b (AFTER)

UTP620144200
1 November 1985

Window Manager

Device

Location

Display

Viewport

Application

Type

Name

Pri

Window

Name

Size

Offset

Row Col

W D

Row Col

SDARTESTZZ SDPRINTZZZ PRINT.DEV 1

SDARTESTZZ

SCREEN

SDARTESTZZ

W3

SDARTESTZZ VT100 TT: 2

SDARTESTZZ

SCREEN

SDARTESTZZ

W3

SDARTESTZZ

W3

MENU VT100 TT: 3

MENU

SCREEN

6	17	36	11	0	0
1	1	80	23	0	0
2	60	10	8	0	0
1	1	80	24	0	0
1	1	80	23	0	0
2	60	10	8	0	0
2	60	10	8	0	0
1	1	80	24	0	0
1	1	80	23	0	0

Msg: 0

window mgr

Msg: ☐

Window mgr

Figure 5-58a (BEFORE)

UTP620144200
1 November 1985

Command Line: addfrm w3 ff1

Command L

form ff1

form ff2

form ff3

form ff5

form ffo

form ff7

A	B
E	F
I	J

form ff4

form ff8

form ff4

Display:

Msg: 3 Window is selected

window mgr

Figure 5-58b (AFTER)

UTP620144200
1 November 1985

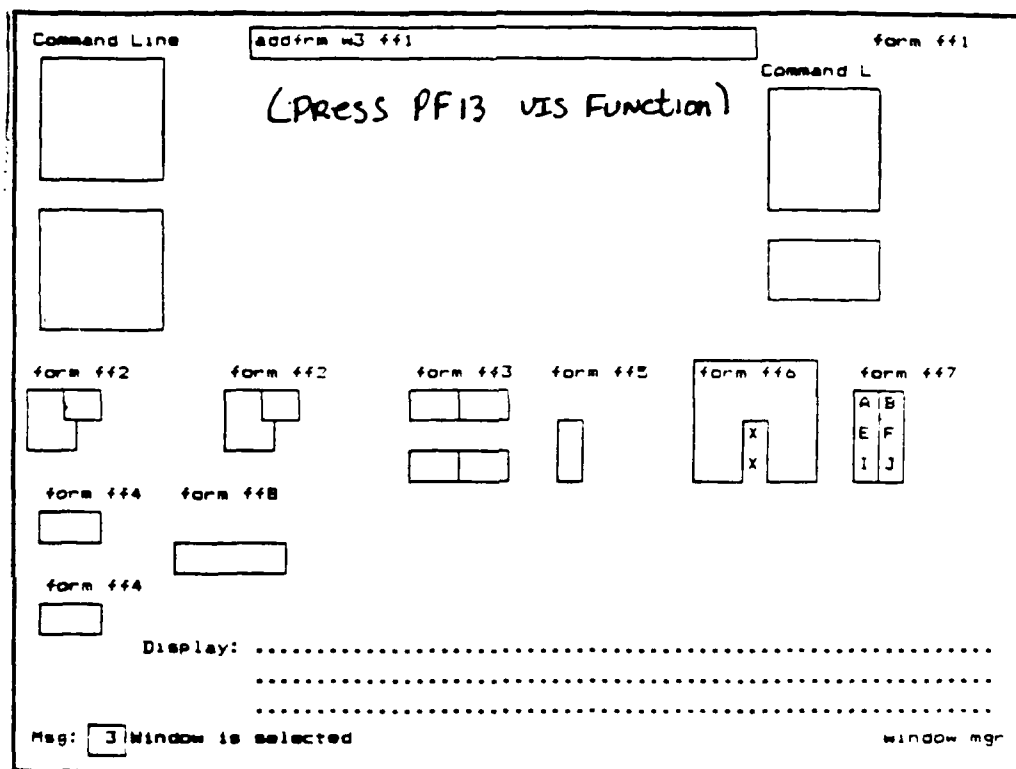


Figure 5-59a (BEFORE)

UTP620144200
1 November 1985

1168 TEST BED VERSION 2.0

DATE: TIME: USER ID: ROLE:

FUNCTION: DEVICE TYPE: DEVICE NAME:

Msg: 3 Window is selected window mgr

Figure 5-59b (AFTER)

UTP620144200
1 November 1985

IISS TEST BED VERSION 2.0

DATE: TIME: USER ID: ROLE:

FUNCTION: DEVICE TYPE: DEVICE NAME:

msg: 3 Window is selected window mgr

Figure 5-60a (BEFORE)

UTP620144200
1 November 1985

Window Manager

Device				Window Name	Location		Display Size		Viewport Offset	
Application	Type	Name	Pri		Row	Col	W	D	Row	Col
SDARTESTZZ	SDPRINTZZ	PRINT.DEV	1		6	17	36	11	0	0
SDARTESTZZ				SCREEN	1	1	80	23	0	0
SDARTESTZZ				W3	2	60	10	8	0	0
SDARTESTZZ	VT100	TT:	2		1	1	80	24	0	0
SDARTESTZZ				SCREEN	1	1	80	23	0	0
SDARTESTZZ				W3	2	60	10	8	0	0
SDARTESTZZ				W3	2	60	10	8	0	0
MENU	VT100	TT:	3		1	1	80	24	0	0
MENU				SCREEN	1	1	80	23	0	0

Mag: ☐

window mgr

Figure 5-60b (AFTER)

UTP620144200
1 November 1985

Window Manager

Application	Device			window Name	Location		Display Size		Viewport Offset	
	Type	Name	Pri		Row	Col	W	D	Row	Col
SDARTESTZZ			1		6	17	36	11	0	0
SDARTESTZZ				SCREEN	1	1	80	23	0	0
SDARTESTZZ				MS	2	60	10	8	0	0
SDARTESTZZ	VT100	TT:	2		1	1	80	24	0	0
SDARTESTZZ				SCREEN	1	1	80	23	0	0
SDARTESTZZ				MS	2	60	10	8	0	0
SDARTESTZZ				MS	2	60	10	8	0	0
MENU	VT100	TT:	3		1	1	80	24	0	0
MENU				SCREEN	1	1	80	23	0	0

Mag: window mgr

Figure 5-61a (BEFORE)

UTP620144200
1 November 1985

Command Line addtra w3 ff1 form ff1

Command L

Command Line chgidv 6

form ff2

form ff4

form ff4

form ff8

form ff6

form ff7

A	B
E	F
I	J

Display:

Mag: 1 Window is selected window mgr

Figure 5-61b (AFTER)

UTP620144200
1 November 1985

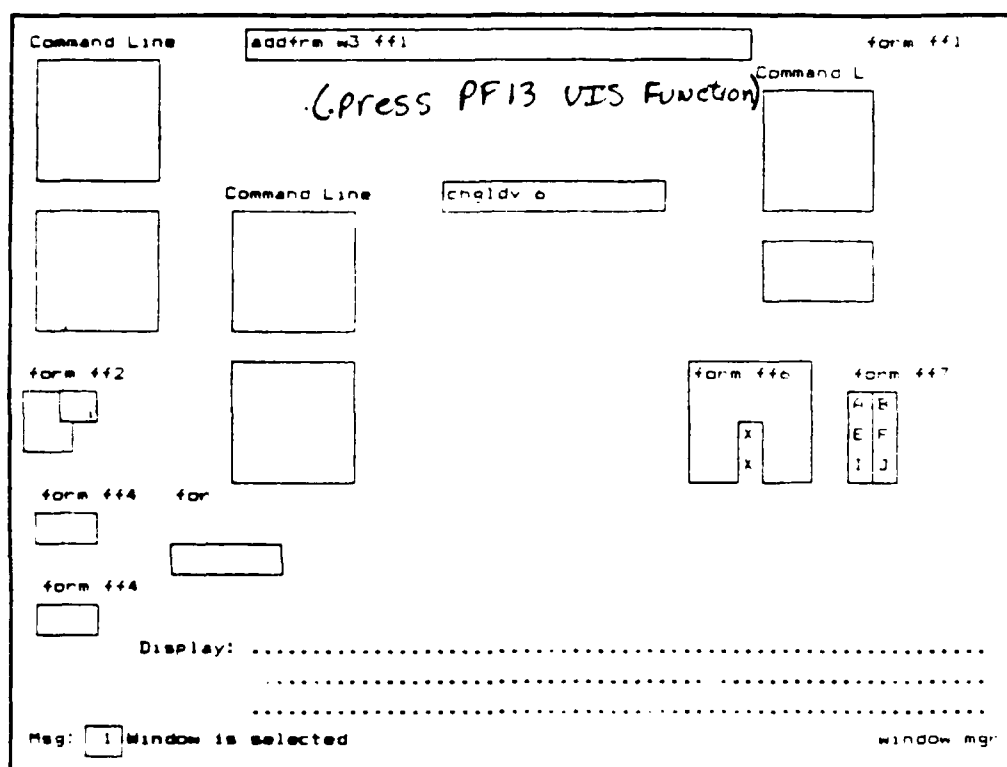


Figure 5-62a (BEFORE)

UTP620144200
1 November 1985

I I S S T E S T B E D V E R S I O N 2.0

DATE: TIME: USER ID: ROLE:

FUNCTION: DEVICE TYPE: DEVICE NAME:

Msg: Window is selected window mgr

Figure 5-62b (AFTER)

UTP620144200
1 November 1985

```

I I S S   T E S T   B E D   V E R S I O N   2.0
-----
DATE:  9/ 9/85    TIME: 11:51:58    USER ID: FIORENC    ROLE:  MANAGER

FUNCTION: window    DEVICE TYPE:      DEVICE NAME:

Msg:  2  window is selected
                                         window mgr
  
```

Figure 5-63a (BEFORE)

UTP620144200
1 November 1985

Window Manager

Device				Window Name	Location		Display Size		Viewport Offset	
Application	Type	Name	Pri		Row	Col	W	D	Row	Col
SDARTESTZZ	VT100	TT:	1		6	17	36	11	0	0
SDARTESTZZ				SCREEN	1	1	80	23	0	0
SDARTESTZZ				WG	2	60	10	8	0	0
SDARTESTZZ	VT100	TT:	2		1	1	80	24	0	0
SDARTESTZZ				SCREEN	1	1	80	23	0	0
SDARTESTZZ				WG	2	60	10	8	0	0
SDARTESTZZ				WG	2	60	10	8	0	0
MENU,	VT100	TT:	3		1	1	80	24	0	0
MENU				SCREEN	1	1	80	23	0	0

Msg: 0

window msg

Figure 5-63b (AFTER)

UTP620144200
1 November 1985

Window Manager

Device

Location

Display

Viewport

Window

Size

Offset

Application

Type

Name

Pr

Name

Row Col

W D

Row Col

SDARTESTZZ

VT100

TT:

1

SDARTESTZZ

SCREEN

SDARTESTZZ

W3

SDARTESTZZ

VT100

TT:

1

SDARTESTZZ

SCREEN

SDARTESTZZ

W3

SDARTESTZZ

W3

MENU

VT100

TT:

3

MENU

SCREEN

0 17

30 11

0 0

1 1

8 23

0 0

2 6

10 8

0 0

1 1

8 24

0 0

1 1

8 23

0 0

2 6

10 8

0 0

2 6

10 8

0 0

1 1

8 24

0 0

1 1

8 23

0 0

Msg: 0

window mgr

Figure 5-64a (BEFORE)

UTP620144200
1 November 1985

Command Line addfrm w3 ff1 form ff1

Command L

form ff2 form ff2 form ff3 form ff5 form ffb form ff7

form ff4 form ff8

form ff4

Display:

Msg: ☒ Window is selected window mgr

Figure 5-64b (AFTER)

UTP620144200
1 November 1985

Command Line form ff1

(Press PF13 UIS Function)

Command L

form ff2 form ff2 form ff3 form ff5 form ffb form ff7

form ff4 form ff8

form ff4

Display:

Msg: Window is selected window mgr

Figure 5-65a (BEFORE)

UTP620144200
1 November 1985

IISS TEST BED VERSION 2.0

DATE: TIME: USER ID: ROLE:

FUNCTION: DEVICE TYPE: DEVICE NAME:

Msg: 2 Window is selected

Window msg

Figure 5-65b (AFTER)

UTP620144200
1 November 1985

MISS TEST BED VERSION 2.

DATE: 9/9/85 TIME: 11:51:58 USER ID: MORENC ROLE: MANAGER

FUNCTION: window DEVICE TYPE: DEVICE NAME:

Msg: 2 Window is selected

Figure 5-66a (BEFORE)

Window Manager										
Device				Window Name	Location		Display Size		Viewport Offset	
Application	Type	Name	Prs		Row	Col	W	D	Row	Col
SDARTESTZZ	VT100	VT:	1							
SDARTESTZZ				SCREEN	1	1	8	13		
SDARTESTZZ				W3	1	6	10	6		
SDARTESTZZ				W3	1	6	10	6		
SDARTESTZZ	VT100	VT:	2							
SDARTESTZZ				SCREEN	1	1	8	13		
SDARTESTZZ				W3	1	6	10	6		
MENU	VT100	VT:	3							
MENU				SCREEN	1	1	8	13		

Msg: ☐

window mgr

Figure 5-66b (AFTER)

UTP620144200
1 November 1985

Window Manager										
Device				Window Name	Location		Display Size		Viewport Offset	
Application	Type	Name	Prj		Row	Col	W	H	Row	Col
SDARTESTZZ	VT100	TTT	-							
SDARTESTZZ				SCREEN	1	1	8	24		
SDARTESTZZ				W3	1	6	10	8		
SDARTESTZZ				W3	1	6	10	8		
SDARTESTZZ	VT100	TTT	1		6	17	36	11		
SDARTESTZZ				SCREEN	1	1	8	23		
SDARTESTZZ				W3	1	6	10	8		
MENU	VT100	TTT	3		1	1	8	24		
MENU				SCREEN	1	1	8	23		

Reg: window mgr

Figure 5-67a (BEFORE)

UTP620144200
1 November 1985

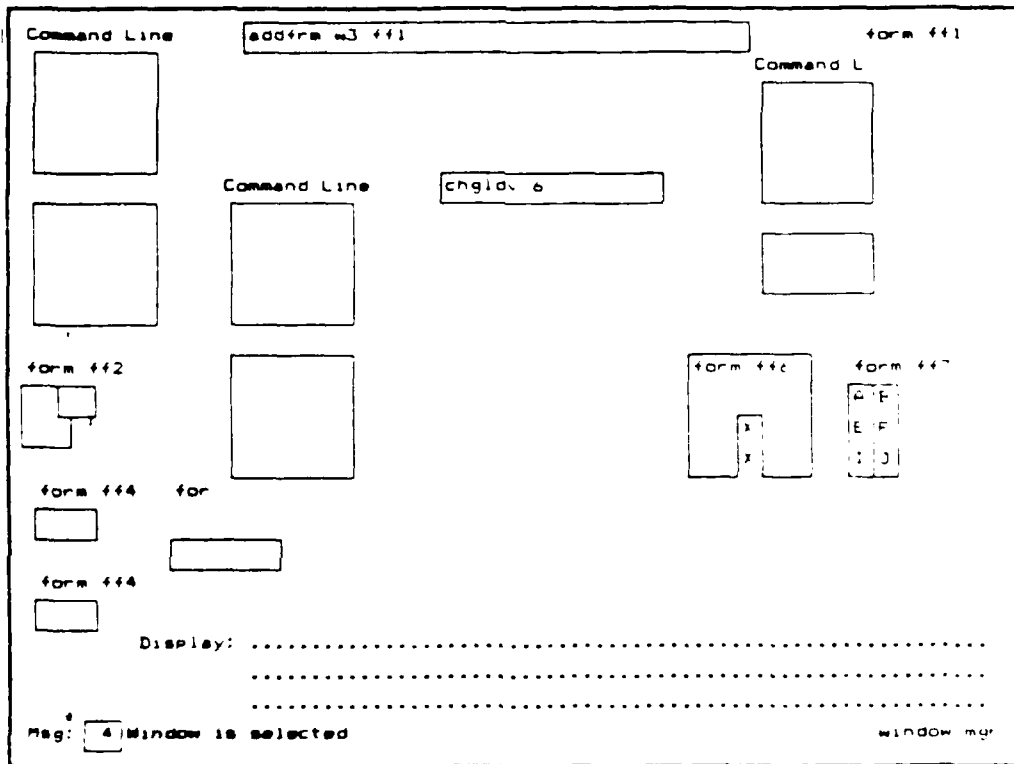


Figure 5-67b (AFTER)

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1 November 1985

Command Line form f41

(Press PF12 unselect)

Command L

Command Line

form f42

form f44 for

form f44

form f46

form f47

A	B
E	F
I	J

Display:

Reg Window is selected window reg

Figure 5-68a (BEFORE)

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The diagram shows a graphical user interface with several windows and command lines. At the top left, a window labeled "Command Line" contains the text "addrw w3 ffl". To its right is a window labeled "form ffl". Below the top-left window is another window, and to its right is a window labeled "Command Line" containing "chglav e". In the center is a large empty square window. To the left of this central window is a window labeled "form ffl" containing a small diagram. Below that is a window labeled "form ffl" containing a small diagram. To the right of the central window is a window labeled "form ffl" containing a small diagram. Below the central window is a window labeled "form ffl" containing a small diagram. At the bottom left, there are two small windows labeled "form ffl" and "form ffl". At the bottom right, there are two small windows labeled "form ffl" and "form ffl". At the bottom center, there is a window labeled "Display:" followed by three lines of dotted text. At the bottom left, there is a window labeled "Msg: Window is unselected". At the bottom right, there is a window labeled "window mu".

Figure 5-68b (AFTER)

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Command Line		clear 25		form #11	
<div></div>		Command Line		<div></div>	
<div></div>		Command Line		chgline	
<div></div>		<div></div>		<div></div>	
form #42		<div></div>		form #42	
<div></div>		<div></div>		<div></div>	
form #44		for		form #47	
<div></div>		<div></div>		<div></div>	
form #44		<div></div>		<div></div>	
<div></div>		<div></div>		<div></div>	
Display:					
.....					
.....					
Msg: <input type="checkbox"/> Window is unselected					
window mgr					

Figure 5-69a (BEFORE)

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The screenshot displays a window manager interface. At the top, a 'Command Line' box contains the text 'clsdev 25'. Below this, there are several rectangular windows. On the left, two windows are stacked vertically. On the right, two more windows are stacked vertically, with the top one labeled 'form f41' and the bottom one 'Command L'. In the center, there are several smaller windows: 'form f42' (two instances), 'form f43' (two stacked boxes), 'form f45' (a single box), 'form f4c' (a box with internal structure), and 'form f47' (a box with internal structure). Below these, there are more windows: 'form f44' (two instances) and 'form f48' (a single box). At the bottom, a status bar displays the text 'Display: Closed logical device: 25' followed by three dotted lines. In the bottom left corner, there is a 'Mag:' label with a small circle icon. In the bottom right corner, the text 'window mgr' is visible.

Figure 5-69b (AFTER)

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Command Line form f+1

(press PF4 quit key)

Command L

form f+2 form f+2 form f+3 form f+5 form f+6 form f+7

form f+4 form f+8

form f+4

Display: Closed logical device: 25

Reg: window mgr

Figure 5-70a (BEFORE)

UTP620144200
1 November 1985

```

I I S S   T E S T   B E D   V E R S I O N   2.0
-----
DATE:  9/ 9/85    TIME: 11:51:58    USER ID: MORENC    ROLE:  MANAGER
FUNCTION:          DEVICE TYPE:      DEVICE NAME:

```

Figure 5-70b (AFTER)

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1 November 1985

ISS TEST BED VERSION 2.0

DATE: 9/ 9/85 TIME: 11:51:58 USER ID: MORENC ROLE: MANAGER

FUNCTION: DEVICE TYPE: DEVICE NAME:

(Press PF4 & .T key)

msg 2 window is selected window msg

Figure 5-71a (BEFORE)

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\$

Now at Vax Command level

Figure 5-71b (AFTER)

APPENDIX A

Commands for ARTEST

Commands are of the form:

command arg1 arg2 ... argn

Where command is the form processor procedure implementing the command and arg1, etc. are the input arguments. Arguments are separated by blank(s) and arguments which contain blanks are enclosed in double quotes.

Window/Form Manipulation

add form to a window	addfrm window_path form_name
delete pages from window	rmvpag window_path page_number
replace page in window	rplfrm window_path page_number form_name
close form	clsfrm form_name

Window/Form Information

get name of form on page n	gpage window_path page_number
get number of pages in window	gwindo window_path

Attributes

change attributes	putatt path dur attribute
get attributes	getatt path dur
put and get temp attributes	tmpatt path dur attribute
change background attributes	putbak path dur attribute
get background attributes	getbak path dur
put and get background	tmpbak path dur attribute

dur is 0) permanent
1) temporary

attributes are:
INPUT, OUTPUT, TEXT, HIDDEN, ERROR

background attributes are:
WHITE, BLACK, XPARNT

Data Manipulation

put data to form item array pdata path data
get data from form item array gdata instance path
instance is 0=previous, 1=current

Miscellaneous

put cursor to field putcur path
window set(term within term) oiscr window_path
parse fully qualified name parfqm level
 with level: 1=first, 2=second, ...
 0=last, -1=next to last, ...
 Must use pfl6(0) first!!!

Function Keys

pf0(enter) - do command on command line
pfl6(0) - display path name of cursor position
pfl1 - go to next form processor mode
pf2 - help
pf3 - display message screen
pf4 - quit

for scrolling, press pfl until the mode is scrll/page,
then:

pf5(7) - horizontal scroll forward
pf6(8) - horizontal scroll backward
pf7(9) - vertical scroll forward
pf8(-) - vertical scroll backward
pf9(4) - horizontal page forward
pf10(5) - horizontal page backward
pf11(6) - vertical page forward
pf12(0) - vertical page backward

APPENDIX B

/* these forms are for testing the form processor */

CREATE FORM ff1
PROMPT AT 1 2 "Command Line"
item i0
at 1 70
size 8
display as text
value "form ff1"

item i3
at 21 11
size 8
display as text
value "Display:"

item i4
at 1 20
size 40
display as input
help pathcom

WINDOW w1 (2 v 1)
AT 2 2
SIZE 10 BY 4
display as white

WINDOW w2(2 v 1, 2 H 1)
AT 2 15
SIZE 10 BY 4
display as xparnt

WINDOW w3 at 2 60
size 10 by 8
display as black

form ff2 (2 h 4)
at 12 1
size 12 by 4

form ff3
at 12 32
size 10 by 4

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form ff4 (2 v 1)
at 16 2
size 10 by 2

form ff5
at 12 43
size 10 by 4

form ff6
at 12 55
size 10 by 4

form ff7
at 12 68
size 10 by 4

form ff8
at 16 13
size 10 by 4

item fqn
at 21 20
size 60 by 3
display as output

CREATE FORM ff2
prompt 1 2 "form ff2"

item i1(2 h 1)
at 2 2
size 2
display as input

item i2
at 3 2
size 3
display as input

create form ff3
prompt 1 2 "form ff3"
item i1(2 v 1, 2 h 1)
at 2 2
size 3
display as input

```
create form ff4  
background black  
prompt 1 2 "form ff4"
```

```
item 11  
at 2 2  
size 4  
display as input
```

```
create form ff5  
background white  
prompt 1 2 "form ff5"
```

```
item 11  
at 3 3  
size 1 by 2  
display as input
```

```
create form ff6  
background xparnt  
prompt 1 2 "form ff6"
```

```
item 11  
at 3 6  
size 1 by 4  
display as input
```

```
create form ff7  
prompt 1 2 "form ff7"  
item 11(3'6 v 0. 2/4 h 1)  
at 2 2  
size 1  
display as input
```

```
create form ff8  
prompt 1 2 "form ff8"
```

```
item 11  
at 3 2  
size 8  
display as input
```

```
create form ff9  
prompt 1 2 "form ff9"
```

item 11
at 2 2
size 8
display as input

window w4
at 3 1
size 10 by 5
display as black

create form pathcom
prompt 1 9 "Commands for ARTEST"
prompt 2 9 "-----"
prompt 3 9 "add form to a window addrfm window form"
prompt 4 9 "delete pages from window rmvpag window page"
prompt 5 9 "replace page in window rplfrm window page form"
prompt 6 9 "close form clsfrm form"
prompt 7 9 "put data to form item array pdata path data"
prompt 8 9 "get data from form item array gdata
 inst(0=prev,1=cur) path"
prompt 9 9 "change attributes: foreground putatt path
 dur(prm=0,tmp=1) attrib"
prompt 10 9 "get attributes: foreground getatt path
 dur(prm=0,tmp=1)"
prompt 11 9 "put and get temp attributes(f) tmpatt path dur
 attrib"
prompt 12 9 "change attributes: background putbak path
 dur(prm=0,tmp=1) attrib"
prompt 13 9 "get attributes: background getbak path
 dur(prm=0,tmp=1)"
prompt 14 9 "put and get temp attributes(b) tmpbak path dur
 attrib"
prompt 15 9 "get name of form on page n gpage window page"
prompt 16 9 "get number of pages in window gwindo window"
prompt 17 9 "put cursor to field putcur path"
prompt 18 9 "window set(term within term) oiscr path"
prompt 19 9 "parse fully qualified name parfq
 lev(0=1st,1=fst,-1=nxt2lst,etc)"
prompt 20 9 " Must use pf16(0)
 first"
prompt 21 9 "Function Keys"
prompt 22 9 "-----"
prompt 23 9 "pf16(0) - display path name of cursor position"

END

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DTIC